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# Appendices

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RESPONSIBILITY STATEMENT

Management’s responsibility statement in respect of the annual report and consolidated financial statements

We hereby confirm that to the best of our knowledge:

(a) the consolidated financial statements of PJSC RusHydro and its subsidiaries (RusHydro Group), prepared in accordance with the IFRS, give a true and fair view of the assets, liabilities, financial position and profit or loss of RusHydro Group;

(b) this annual report includes a fair review of the development and performance of the business and the position of RusHydro Group, as well as a description of the principal risks and uncertainties affecting the operations of PJSC RusHydro and its subsidiaries.

Chairman of the Management Board – General Director
N. Shulginov
Chief Accountant
Y. Medvedeva

Disclaimer: forward-looking information

The report contains information on RusHydro Group’s plans and intentions in the medium and long term. These plans and intentions are forward-looking and their feasibility depends, among other things, on a number of economic, political and legal factors beyond the Company’s control (the global financial, economic and political situation, key markets, changes in tax, customs and environmental legislation, etc.). As such, actual future performance indicators may differ from the forward-looking statements published in this annual report.

A representative of the senior management responsible for the preparation of the report and the quality of its information is a Member of the Management Board – First Deputy General Director, who is also in charge of the Unit of financial and corporate law management. [102-48]

Content and boundaries of the report

The content of this report has been determined in accordance with the requirements of the applicable regulations and standards, with the Group’s stakeholder being engaged in the process. For more information on the content determination process and the materiality matrix, see page 222. The report has been prepared in accordance with the GRI SRS: Core option. [102-54]

The operational results of RusHydro Group (including financial and production ones) have been disclosed in line with the IFRS reporting boundaries, unless otherwise specified in the notes to the disclosure.

The Group’s subsidiaries not included in the boundaries of the disclosure are not material for the purposes of reporting.

Assurance of the report [102-54]

The accuracy of data provided in the annual report has been confirmed by the Company’s Internal Audit Commission. The accuracy of the financial report has been confirmed by the Company’s auditor opinion provided in Appendix 16.

Reliability of qualitative and quantitative information prepared in accordance with the GRI SRS (Selected Information) has been verified in line with the Assurance Engagements Other than Audits or Reviews of Historical Financial Information of International Standard for Assurance Engagements (ISAE) 3000 (revised). The auditor’s report on the independent audit results, which provides limited assurance regarding the Selected Information, can be found on page 216. The independent audit was performed by AO PricewaterhouseCoopers Audit.

The report has also taken into account feedback and recommendations from the expert committees of the Moscow Exchange and Expert RA rating agency judging the annual report competitions, as well as the recommendations of the RSPP Committee on Social Responsibility.
MESSAGE
FROM THE CHAIRMAN OF THE BOARD OF DIRECTORS

Dear shareholders,

2018 marked yet another year for RusHydro Group’s ongoing growth and development. We commissioned new power plants in the Far East and modernized existing hydropower plants to increase our total installed capacity to 39.4 GW, setting a new record for the fourth consecutive year.

As a matter of strategic importance, we help deliver on the national goals in the Far Eastern Federal District. In 2018, we launched Vostochnaya CHPP in Vladivostok, the third hydropower unit of Ust-Srednekanskaya HPP in the Magadan Region, and a wind power plant in the Arctic settlement of Tiksi in Yakutia. We are also completing the construction of Sakhalinskaya GRES-2 and a CHPP in Sovetskaya Gavan. Grid infrastructure projects are underway, including in priority development areas.

The Russian government places a great emphasis on the development of the Far East, with the region’s investment appeal rising, new businesses emerging, and the economy booming. 2018 saw electricity consumption in the region growing twice as fast as across Russia. Still, we have to focus on energy sector development and modernization and power grid expansion – this is the only way to accelerate the improvement of quality of living in the Far East going forward.

The Long-Term Program for Replacement of Retiring Capacities developed in 2018 by RusHydro’s management and approved by its Board of Directors is key to address the problem of ageing CHPP equipment in this strategically important and rapidly growing macroregion.

The alignment of tariffs in the Far East’s isolated areas outside of UES of the East with average national rates helps promote further investments in the region’s economy. The Russian Government is going to extend the tariff adjustment mechanism up to 2028, with RusHydro as its operator.

In 2018, the Company continued its efforts to improve corporate governance. RusHydro Group delivered 15% optimization in its structure by consolidating businesses with similar functions or closing down poor performers. The Group introduced and has ever since been improving its vertically integrated audit, control and risk management framework to enhance the quality of asset management.

As Russia’s leader in generating green energy, RusHydro Group remains committed to the principles of sustainable development. In 2018, the Company made strong progress in this field, including targets approved to reduce greenhouse gas emissions and the mechanisms for their achievement, with the regulations on procurements now requiring bidders’ compliance with the principles of social responsibility and sustainable development. In 2018, RusHydro’s Board of Directors approved its updated Environmental Policy, which sets targets to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions by 6.1% by 2025 vs 2005, and prevent species elimination as a result of the Group’s operating activities.

RusHydro Group focuses on the development of local communities across its footprint, providing for better living and health conditions. A major employer and taxpayer in the regions of its operations, RusHydro created 1,250 new jobs in 2018. Its tax payments to budgets of different levels exceeded RUB 81 bn. The Company implements charitable projects prioritizing support to vulnerable population groups, people with disabilities, veterans and healthcare institutions, along with culture, education, sports and environment projects.

Over the past year, the Board of Directors held 18 meetings, both in person and in absentia, and considered more than 100 key matters related to RusHydro Group’s general management and strategic development.

We are grateful to our shareholders, partners and employees for their contribution to RusHydro’s development and confidence in the Company’s governing bodies.

Yury TRUTNEV
Chairman of the Board of Directors of RusHydro
MESSAGE FROM THE CHAIRMAN OF THE MANAGEMENT BOARD – GENERAL DIRECTOR

Dear shareholders, colleagues and partners,

The year of 2018 was another confident step forward for RusHydro as we registered record high power generation and ensured financial growth, including through consistent cost optimization. In addition to bringing to completion several major investment projects, RusHydro drove home the need to build new and upgrade existing thermal power generation facilities in the Far East with guaranteed return on investment. We are also working towards establishing long-term tariff regulation in the Far Eastern Federal District that would take due account of energy companies’ economically justified expenses. Taken together, these initiatives represent a concerted effort on our part to boost the Company’s fundamental value for the benefit of all shareholders.

The Group’s power generation, including Boguchanskaya HPP, increased 2.8% y-o-y to reach an all-time peak of 144.3 bn kWh, while power output across Russia grew 1.6% y-o-y. Our strong operating performance was the result of effective management of hydropower operational regimes amid higher-than-usual water levels in rivers and the growing demand for electricity in the Far Eastern Federal District, which is almost entirely powered by RusHydro Group.

In 2018, RusHydro launched Vostochnaya CHP in Vladivostok (the new capital of the Far Eastern Federal District) and the third hydropower unit at Ust-Srednekanskaya HPP in the Magadan Region. The Group also commissioned a unique wind power plant in the Arctic settlement of Tiksi in the Republic of Sakha (Yakutia) and completed the first stage of Anadyrskaya CHPP gasification in the North Caucasus, while also completing the construction of Ust-Srednekanskaya HPP as per the design parameters and building a 110 kV high-voltage power line. The upgrade and modernization program is expected to yield 163.7 MW of additional capacity at the existing hydropower generation facilities.

Among other things, RusHydro focuses on implementing the Long-Term Program for Replacement of Retired Capacities and Power System Development in the Far East that was drafted by the Company’s management team and approved by the Board of Directors in 2018. Key projects under the Program include the construction of Khabarovskaya CHP-4, Artemovskaya CHP-2 and the second stage of Yakutskaya GRES-2; the upgrade of Vladivostokskaya CHP-2; following the inclusion of these projects in the state heat upgrade program, RusHydro will proceed with the construction and modernization of power plants with guaranteed return on investment.

RusHydro’s Value Growth Plan through 2021 includes a number of initiatives, but most importantly it promotes the principles of guaranteed return on investment in the Far East thermal generation, introduction of long-term tariff regulation in the Far Eastern Federal District, stronger efficiency and lower operating costs.

By the end of the year, the installed capacity at the Company’s plants reached 39.4 GW, putting RusHydro ahead of all its Russian peers. RusHydro’s Board of Directors supported the Management Board’s Initiative to start levelling the station node building at Zagoskinskaya PSP-2 using the compensation grouting technology to inject special solutions under the foundation. Once the project is completed, RusHydro will make further decisions on how to finish construction of this essential element in Russia’s unified energy system.

In 2018, the Company completed the construction of 110 kV and 35 kV approach lines to the 230 kV Maya substation. Thanks to this major infrastructure project in the Far Eastern Federal District, starting 2019, the frequencies of the Central and Western energy hubs of Yakutia were synchronized with the UES of East, thereby ensuring a more reliable power supply for the republic.

RusHydro continues to develop power retailing, having opened 17 unified accounting centers in the Krasnoyarsk and Khabarovsk territories and in the Sakhalin Region, with two more centers in the Primorye Territory set to follow in 2019. This aligns perfectly with the Russian President’s Order On National Goals and Strategic Objectives of the Russian Federation through to 2024, as such centers contribute to fostering a comfortable urban environment and promoting digital economy. Unified accounting centers help create synergies for RusHydro by consolidating the Group’s retail functions, improving payment discipline, slashing consumer debt, and diversifying the utilities business.

The Group’s investment program through to 2023 (as approved by the Board of Directors) sets out the scope of mid-term initiatives, providing for an estimated RUB 383 bn to be spent on commissioning around 1.6 GW and over 560 Gcal/h of power and heat capacities, respectively, as well as on building and refurbishing more than 130 km of heat and 7,600 km of electric power supply networks. During this period, the Group plans to launch Salakhaltinskaya GRES-2, CHP-3 in Sovetskaya Gavan, Nizhne-Bureyskaya CHP, Znamenskaya GRES-1, and 9 smaller HPPs in the North Caucasus, while also completing the construction of Ust-Srednekanskaya HPP as per the design parameters and building a 110 kV high-voltage power line. The upgrade and modernization program is expected to yield 163.7 MW of additional capacity at the existing hydropower generation facilities.

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In 2018, the Company successfully completed three Eurobond offerings, including two ruble-denominated issues and a debut dollar issue, with the books substantially oversubscribed by international investors.

The year marked the first time all three major international rating agencies – S&P, Moody’s, and Fitch – upgraded the Company’s credit ratings to sovereign (investment grade). At the same time, ACRA confirmed RusHydro’s top credit rating on the national scale, noting the critical systemic importance of the Company for the Russian economy.

I would like to take this opportunity to express deep gratitude to the employees engaged in the generation, transmission, retail, design and other operations of our unique energy holding. At the end of the day, it was your hard work that made this year a success for RusHydro Group. We have no intention of slowing down. Instead, we will continue raising the bar to bring the best value to our shareholders, consumers, and the country’s economy.

Nikolay SHULGINOV
Chairman of the Management Board – General Director

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RUSHYDRO GROUP ANNUALLY COMMISSIONS NEW GENERATION FACILITIES AND UPGRADES EXISTING ONES. AT THE END OF 2018, RUSHYDRO’S INSTALLED CAPACITY INCREASED TO 39.4 GW, WHICH BROUGHT THE POWER HOLDING TO FIRST PLACE AMONG DOMESTIC PEERS AGAINST THIS INDICATOR. RUSHYDRO OPERATES AND BUILDS POWER PLANTS IN THE CENTRAL PART OF RUSSIA, THE VOLGA REGION, IN THE NORTH CAUCASUS, IN SIBERIA, AND IN THE FAR EAST.
### COMPANY

PJSC RusHydro was established on December 2, 2004 as part of the reorganization of the national energy holding RAO UES of Russia.

RusHydro is the largest hydro-generating company in Russia and among the top global hydropower companies in terms of installed capacity of power plants.

RusHydro Group is a leader in generating renewable energy from water flows, solar, wind, and geothermal thermal. RusHydro Group is also a leader in generating renewable energy from water flows, solar, wind, and geothermal thermal.

In accordance with the Russian President’s Order No. 1009 dated August 4, 2004, PJSC RusHydro has been included in the list of strategic enterprises and joint stock companies since 2012.

Currently, RusHydro Group comprises over 400 power generation facilities, including Russia’s largest Sayano-Shushenskaya HPP named after P. S. Neporozhytskii (capacity of 6,400 MW), nine power plants of Volga-Kama cascade (total installed capacity over 10,000 MW), Bureyskaya HPP (capacity of 2,010 MW), Zeya HPP (capacity of 1,330 MW), Novosibirskaya HPP (capacity of 1,800 MW), several dozen hydroelectric power plants in the North Caucasus and highly maneuverable capacities of pumped storage power plants.

### RUSHYDRO’S BACKGROUND

#### 2004–2005

As part of the government program to reform the power sector, PJSC RusHydro (previously, OJSC HydroOGK) was established on the basis of RAO UES of Russia hydropower plants.

#### 2006

RusHydro and RUSAL signed a joint agreement on the implementation of the Boguchanskaya Power and Metallurgical Association project to complete Boguchanskaya HPP – one of the largest and most advanced hydroelectric power plants in the world.

The Company put into operation the first stage of Tigranyantsy (600 MW), Gelibolakty (644 MW), Maginskaya (1,230 MW) and Agulskaya (60 MW) smaller HPPs in the Republic of Dagestan, and the third stage of Zelentschitskaya HPP in Karachay-Cherkessia.

#### 2009

An accident took place at Sayano-Shushenskaya HPP. RusHydro arranged for the recovery operations and engaged Power Machines as a supplier of the core equipment. First units were restored and put into operation in next to no time.

#### 2010

For the first time in its history, RusHydro was named among the world’s Top 250 largest energy companies, according to the 2010 Top 250 Global Energy Company Rankings by Platts. The Company ranked 113th in the consolidated ranking of the world’s fastest-growing energy companies.

#### 2011

The Russian Federation contributed a controlling stake in RAO UES East to the Company’s authorized capital, increasing the installed capacity of RusHydro Group from 26.1 to 35.2 GW.

#### 2012

In accordance with the Russian President’s Decree, RUB 50 bn were contributed to RusHydro’s authorized capital for the implementation of four priority thermal generation projects in the Far East, including the construction of the second stage of Blagoveschenskaya HPP, the first stage of Yakutskaya GRES-2, Sakhalskaya GRES-2, and ChHP in Sovetskaya Garavan.

#### 2013–2014

The main recovery and reconstruction operations of Sayano-Shushenskaya HPP were completed, with the HPP reaching its design capacity of 6,400 MW. In addition, a major upgrade took place at the entire technological complex of the plant, making Sayano-Shushenskaya HPP the most advanced and the safest hydroelectric power plant in Russia.

The Company commissioned the first two hydropower units at Ust-Snezhnenskaya HPP in the Magadan Region, with the plant capacity reaching 168 MW.

Boguchanskaya HPP ramped up to the designed installed capacity of 2,997 MW.

Yuzhno-Sakhalinskaya GRES ramped up to the designed installed capacity of 131.2 MW.

#### 2015

100 MW Gotsatinskaya HPP was put into operation in the Republic of Dagestan. The Company also commissioned 1 MW Batagay SPP, the world’s largest solar power plant beyond the Arctic Circle, as well as four smaller SPPs.

#### 2016

The Company completed the construction of Zelentschitskaya HPP-PSP with a capacity of 140 MW and 156 MW in turbine and pump modes, respectively.

The Company completed the second construction stage of Blagoveschenskaya HPP, increasing its electricity and heat capacity by 100 MW to 400 MW and by 188 Gcal/h to 1,005 Gcal/h, respectively.

#### 2017

RusHydro and VTB Bank completed the unique for the Russian market transaction on acquiring 13% of RusHydro’s shares and concluding a five-year forward contract. All proceeds were used to refinance the debt of RusHydro Group’s Far Eastern energy companies.

The Company completed the first construction stage of 193.5 MW Yakutskaya GRES-2, the largest power plant built under the Presidential Decree.

#### 2018

The Company achieved its target model. PJSC RusHydro consolidated more than 50 hydroelectric power plants in 18 Russian regions.

Two 335 MW hydroelectric units of Bureyskaya HPP were put into operation.
2018 milestones

February

- RusHydro was the first of the Russian corporates to issue three-year ruble-denominated Eurobonds with a coupon rate of 7.4% in 2018. The issue was oversubscribed by four times of the necessary volume of RUB 20 bn.
- The Group’s financial debt went down by RUB 26 bn following exclusion of guarantee obligations between RusHydro and Vnesheconombank on PJSC Boguchanskaya HPP.
- PJSC RusHydro was named Approved Employer by the Association of Chartered Certified Accountants (ACCA).
- S&P Global Ratings (S&P) upgraded the Company’s long-term credit rating to an investment grade BBB- (stable outlook).

March

- Volzhskaya HPP, the largest HPP of the Volga-Kama cascade, commissioned a new hydropower unit and replaced a turbine, generator and auxiliary equipment as part of the Comprehensive Modernization Program.
- The first gas power boiler of Anadyrskaya TPP was launched under a gasification agreement between RusHydro and the Government of the Chukotka Autonomous Area to carry out an extensive upgrade of the plant’s equipment and build gas pipelines.

June

- Volzhskaya HPP’s hydropower unit No. 7 was upgraded as part of RusHydro’s Comprehensive Modernization Program, becoming the second fully modernized hydropower unit at the plant.

May

- RusHydro’s Dagestan branch commissioned Miatsinskaya HPP’s hydropower unit No. 3. Now all HPP’s turbines were replaced as part of the Comprehensive Modernization Program.

July

- RusHydro Group sold its stock in PJSC Inter RAO (5,131,669,622.18 shares) to JSC Inter RAO Capital, which accounts for 4.915% of the authorized capital. The decision was part of non-core asset divestment effort in accordance with the orders and directives of the Russian Government.
- At Novosibirskaya HPP, the turbine replacement was followed by commissioning of the hydropower unit No. 7, as part of the Comprehensive Modernization Program. The upgrade boosted Novosibirskaya HPP’s installed capacity by 5 MW.
- The Alaiga National Park and RusHydro released two leopards on the IUCN Red List into the wild. RusHydro’s leopard conservation project in the North Ossetia received the Vernadsky National Environmental Award as the Best Social and Environmental Initiative.
- Cheboksarskaya HPP put into operation hydropower unit No. 1¼ as part of the Comprehensive Modernization Program, which included the recovery of the adjustable blade pitch and the replacement of the generator stator.

August

- The Company paid out RUB 11.2 bn as dividends for 2017.
- PJSC Sakhalinenergo completed the first stage of power asset consolidation in the Sakhalin Region, which increased the Group’s voting share holding to above 75%. As part of the additional issue of PJSC Sakhalinenergo’s shares, 91 MW power unit No. 5 at Yuzhno-Sakhalinskaya CHPP-1 and other facility infrastructure were transferred from JSC RAO ES East into the ownership of PJSC Sakhalinenergo.
- The Bank of Russia registered RusHydro’s additional share issue and the prospectus. The issue size totaled RUB 1¼ bn. The decision was made by RusHydro’s Board of Directors in June 2018 as part of the first stage of construction of two 110 kV high-voltage single-circuit power lines Pevek – Bilbino in Chukotka.
- Fitch Ratings (Fitch) upgraded the Company’s long-term credit rating and the credit ratings of its bonds to an investment grade BBB- (stable outlook).

September

- CHPP Vostochnaya commissioned in Vladivostok is the first large-scale power plant going into operation in the capital of the Primorye Territory in the last 45 years. It is expected to produce 791 m kWh of electricity and 1.377 mn Gcal of heat annually.

October

- RusHydro and Uzbekgidroenergo, the Uzbek national hydro-generating company, signed a cooperation agreement to develop hydropower generation in Uzbekistan. The agreement provides for a feasibility study of 240 MW Mullalakskaya HPP and 200 MW Verkhne-Pskemskaya HPP construction projects on the Pskem River in Uzbekistan, including design and survey, and research and development.
- RusHydro’s updated environmental policy came into effect seeking to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions, and prevent species elimination as a result of operating activities.
- RusHydro established the Institute of Hydropower and Renewable Energy Sources as part of Moscow Power Engineering Institute to train engineers for hydro- and renewable power generation.
RusHydro issued ruble-denominated eurobonds in the amount of RUB 15 bn maturing in 2022. The issue was oversubscribed three times, and the coupon rate was set at 6.355% per annum.

The first unit was commissioned at Rogun HPP, which is under construction on the Vakhsh River (Tajikistan) according to the resolution of the national government. The project was developed by the Moscow-based Hydroproject Institute, part of RusHydro Group.

RusHydro joined the leaders in the indices “Ranks among Top 3 most transparent electricity companies, according to Transparency in Corporate Reporting analysis conducted by the Russian branch of Transparency International;” and “Leaderships in corporate social responsibility, according to Energy Intelligence.”

RusHydro Group put into operation the third hydropower unit at Ust-Srednekanskaya HPP in the Magadan Region, increasing the plant’s capacity by 142.5 MW to 310.5 MW.

The Central and Western districts of Yakutia are connected to the Unified Energy System of Russia.

RusHydro issued ruble-denominated eurobonds in the amount of RUB 15 bn maturing in 2022. The issue was oversubscribed three times, and the coupon rate was set at 6.355% per annum. The eurobonds were placed on the Irish Stock Exchange.

A unique 900 kW wind power plant was commissioned in December. RusHydro joined the leaders in the indices “Ranks among Top 3 most transparent electricity companies, according to Transparency in Corporate Reporting analysis conducted by the Russian branch of Transparency International;” and “Leaderships in corporate social responsibility, according to Energy Intelligence.”

RusHydro’s corporate governance rating upgraded to level 8 (Best Corporate Governance Practice). It is the highest rating assigned by the National Corporate Governance Rating to its Russian members.

Fitch Ratings
In August 2018, the agency upgraded the Company’s long-term credit rating and the credit ratings of its bonds to an investment grade BBB- (stable outlook).

Moody’s
In October 2018, the agency upgraded the Company’s BCA; in February 2019, it upgraded credit ratings of RusHydro and its bonds to an investment grade Baa3 (stable outlook).

S&P Global Ratings
In February 2018, the agency upgraded long-term credit rating of RusHydro and its Eurobonds at investment grade BBB- (stable outlook), which was affirmed in April 2018.

ACRA
In June 2018, ACRA affirmed its long-term credit rating on RusHydro and its bonds at A+ (stable outlook), which represents the top reliability level.

National Corporate Governance Rating
RusHydro’s corporate governance rating upgraded to level 8 (Best Corporate Governance Practice). It is the highest rating assigned by the National Corporate Governance Rating to its Russian members.
Hereinafter, operating costs, profit, EBITDA and margins for 2017–2018 are aligned with the Group’s 2018 consolidated financial statements stated using the new accounting method. The 2017 reporting data were restated due to changes in the Group’s accounting policy with PP&E recognized at historical cost less accumulated depreciation, amortization and impairment losses. The 2016 reporting data do not take into account the change in the accounting policy. The full text of the accounting policy is included in the Group’s 2018 consolidated financial statements.

Revenue includes government grants.

Revenues and operating expenses for 2016 and 2017 are reported without effect of the new IFRS 15 “Revenue from contracts with customers”. The Group has being applying IFRS 15 requirement prospectively since January 1, 2018.

Financial debt is calculated as the sum of long-term and short-term liabilities (less accrued interest payable) as at the reporting date, less current share of net investments in associates and joint ventures (less inter-company balances). Net financial debt is calculated as financial debt less cash and cash equivalents (including bank deposits for up to one year). Thereafter, the data for 2016–2017 may differ from the data included in the Company’s annual report for 2017.

EBITDA margin and net margin factors in other operating income generated by RusHydro Group in 2016 (RUB 12.4 bn), in 2017 (RUB 0.7 bn) and in 2018 (RUB 5.5 bn) and is calculated as insurance proceeds and profits from changes in the value of financial assets at fair value through profit or loss, from sale of assets and subsidiaries, and dividends received.

1 Financial data in accordance with IFRS.

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**Financial data in accordance with IFRS**

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<th>Revenue and operating costs, RUB mn</th>
<th>Net income, RUB mn</th>
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<th>CAPEX, RUB mn</th>
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<th>Total and net financial debt, RUB bn, leverage as at the year-end</th>
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<td>2017</td>
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<tr>
<td>2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Margin performance, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2018</td>
</tr>
</tbody>
</table>

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**Operational performance**

<table>
<thead>
<tr>
<th>Installed capacity, MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electricity generation, bn kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heat supply, '000 Gcal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2018</td>
</tr>
</tbody>
</table>

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1 Including PJSC Boguchanskaya HPP (a joint venture of PJSC RusHydro and RUSAL) and HPP-2 of PJSC KamGibGidro and excluding HPP-1 and HPP-3 of PJSC KamGibGidro, assets held in trust.
**STRUCTURE OF RUSHYDRO GROUP**

- **RAO ES East Subgroup’s companies within report boundaries.**
- **Companies that are part of Rushydro Group, but not within report boundaries.**

### Branches
- PJSC RusHydro’s branch Bureyskaya HPP
- PJSC RusHydro’s branch Volzhskaya HPP
- PJSC RusHydro’s branch Votkinskaya HPP
- PJSC RusHydro’s Dagestan branch Nizhegorodskaya HPP
- PJSC RusHydro’s branch Saratovskaya HPP
- PJSC RusHydro’s branch Sayano-Shushenskaya HPP, named after P. S. Nefedov
- PJSC RusHydro’s branch Kamskaya HPP
- PJSC RusHydro’s branch Cherkessia branch Novosibirskaya HPP
- PJSC RusHydro’s branch Krasnoyarskenergosbyt
- PJSC RusHydro’s branch Chuvashskaya Electricity Sales Company
- PJSC RusHydro’s branch Far-Eastern Energy Company (FECC)

### Subsidiaries combining generation, transfer and sales of electricity
- PJSC Yakutskenergo
- PJSC Sakhalinenergo
- PJSC Magadanenergo
- PJSC Sakhalinenergo
- PJSC Kolymaenergo

### Electric grid subsidiary
- JSC DRSK

### Other specialized companies
- JSC Teplenergoservis
- JSC LCM

### Subsidiaries that are customer-developers
- JSC CHPP at Sovetskaya Gavan
- JSC Sakhalinskaya SDPP-2
- JSC Small HPPs of Altai
- JSC DRSK
- JSC Energotranssnab
- JSC NDES

### Subsidiaries that are institutes
- JSC Vedeneyev VNIIG
- JSC NIES
- JSC Lengiproprojekt
- JSC Mosoblhydroproject
- JSC Hydroproject Institute LLP VNIIH

### Subsidiaries that do not have any relevant activities or the liquidation (preparation for liquidation) of which is in progress
- JSC VOSTEC
- JSC HydroEngineering Siberia
- JSC Magadanelectrosetremont
- JSC Magadanenergoremont

### Companies within the structure of BEMO
- PJSC Boguchanskaya HPP
- PJSC BoAP
- PJSC RAO ES East Holding Company
- HYDROOGK ALUMINIUM COMPANY LIMITED
- HYDROOGK POWER COMPANY LIMITED

### Other investments ranging from 1 to 50%
- LLC Transbaikal Development Corporation
- JSC Magadanelectroset
- JSC IEOC
- LLC Volgahydro
- JSC CBK
- LLC INTERNATIONAL INSTITUTE OF GEOMECHANICS AND HYDRAULIC STRUCTURES
- JSC Krasnoyarsk Krai Development Corporation
- JSC SKK
- JSC NGES
- JSC Shakhtar Ugolhaya
- JSC Okishinskaya TPP
- CJSC Verkhne-Narynskiye HPPs

### Holding companies and asset holders
- JSC RAO ES East
- JSC Hydroinvest
- JSC Moscowans-3
- JSC Blagoveshchenskaya CHPP
- JSC ChirkeiHPPstroy
- LLC Transbaikal Development Corporation
- LLC PACK CORUNH
- LLC Hydroproject Institute LLP VNIIH
- LLC International Institute of Geomechanics and Hydraulic Structures
- LLC IEGC
- LLC FEGC
- LLC HYDROPROJECT-SERVIS
- LLC HYDROPROJECT-SERVIS
- LLC VOSTEC
- LLC JSC Energotranssnab
RUSHYDRO GROUP COMPRISES MORE THAN 70 HYDROPOWER PLANTS IN RUSSIA AND ABROAD, THERMAL GENERATION, RENEWABLES, ELECTRIC GRIDS IN THE FAR EAST, ENERGY RETAIL, CONSTRUCTION AND SERVICE COMPANIES, AND RESEARCH AND DESIGN ORGANIZATIONS.

GEOGRAPHICAL SPREAD

Territories of the Russian Federation

Regions of presence

Rushyhydro Group comprises more than 70 hydropower plants in Russia and abroad, thermal generation, renewables, electric grids in the Far East, energy retail, construction and service companies, and research and design organizations.
BUSINESS MODEL

Incoming Capital Assets

Financial capital

The Company strives after increasing its intrinsic value and boosting investment potential through guaranteed dividend payouts to shareholders and interest payments to lenders.

Property plant and equipment

The Company ramps up electricity generation capabilities by improving the performance of generation programs and investment projects adjusted to their economic efficiency.

Social and reputational capital

The Company contributes to the implementation of government tasks to speed up socio-economic development of the presence regions.

Russia’s first and the world’s fourth-biggest among peer companies with a predominant share of hydrogeneration

Russia’s leader in renewable energy recovery

Natural capital

As the leader of low-carbon power generation in Russia, the Company ensures the reliability and safety of production facilities and seeks to reduce the negative environmental impact.

Intellectual capital

The Company works towards the upgrade in economic, innovative technical and managerial solutions.

Human capital

The Company offers development opportunities, safe working conditions, and fair remuneration to its employees.

Results for Stakeholders

Financial capital

The figures are as of December 31, 2018.

Property plant and equipment

The figures are as of December 31, 2018.

Social and reputational capital

Electricity tariff

The figures are as of December 31, 2018.
RusHydro Group’s Production Chains

New construction
- Equipment suppliers
- External construction and repair companies

Gas supply
- Sakhalin-1 project, operator – Exxon Neftegas Limited LLC (ExxonMobil subsidiary), Sakhalin-1 project, operator – Gazprom Mezhregiongaz LLC
- Sakhalin-Khabarovsk-Vladivostok gas pipeline system
- Sakhatransneftegaz Alroza gas

Coal supply
- SUEK, Mechel, Colmar, and Russian Coal
- Other producers of power and heat transferred by RusHydro to the Far Eastern Federal Districts
  - PISC Alroza, JSC Rosenergoatom Bilibino SPP, Municipal energy

Construction companies
- Customers – Developers
  - Design institutes
  - Repairs

Coal supplier
- JSC LCM

Generation
- PISC RusHydro
  - 24 874 MW

Retail companies
- ESC RusHydro
- JSC Chuvash Energy Retail Company
- PISC Ryazan Energy Retail Company
- PISC Krasnoyarskenergosbyt

Non-price zone of the East
- JSC DGK Far East Generating Company
  - 3 340 MW
  - 6 062 MW
  - 13 246 Gcal/h

Sales
- JSC DEK

Electricity transmission
- JSC DRSK
  - Length of 0.4-110 kV OHL and cable lines:
    - 58 327 km
    - 15 744 MVA
    - 11 847 substations

Electricity and heat generation, transmission, and sales
- JSC-energo and controlled companies in isolated power systems
  - Generation
    - 4 555.5 MW
    - 5 678 Gcal/h

Isolation zones of the Far Eastern Federal District
- 0.4-220 kV power grid complex
  - 46 420 km
  - 10 153 substations
  - 13 573 MVA

I and II price zones
- Buyers/consumers
  - Large industrial consumers on WECM
  - Retail electricity consumers
  - Retail companies
  - Grid companies

Electricity and heat generation, transmission, and sales

Transfer commissioned power facilities to operating utility companies according to a territorial logic.

* PAGE 26
RUSHYDRO GROUP, THE TOP PERFORMER IN THE RENEWABLE ENERGY GENERATION IN RUSSIA, IS BOLSTERING GEOTHERMAL, SOLAR, WIND AND HYDRO-GENERATION PROJECTS IN ISOLATED POWER AREAS OF THE FAR EASTERN FEDERAL DISTRICT. IN 2018, IN THE ARCTIC VILLAGE OF TIKSI, A UNIQUE WIND POWER STATION WITH A CAPACITY OF 900 KW WAS PUT INTO OPERATION.
The Russian electricity and capacity market is comprised of the wholesale electricity and capacity market and the retail electricity market (REM), with RusHydro operating in the wholesale electricity and capacity market. The wholesale market is a place where a special type of commodities—electricity and capacity—are traded within the Unified Energy System across Russia’s economic space. Capacity as a commodity is an obligation to properly maintain power generating facilities in order to timely meet the consumer demand for electric power. The retail market trades in only one commodity—electric power.

With acquisition of a number of electricity retailers and the companies of RAO ES East, RusHydro Group has significantly increased its visibility in the retail electricity and heat markets of Russia. The Group also owns distribution grids in the Far East, the Luchegorsky coal strip mine, construction and repair companies, and design institutes, which makes it one of Russia’s largest energy infrastructure holdings.

RusHydro’s key competitive advantages include:

- HPPs/PSPP-based power generation does not require fuel and is therefore not susceptible to fluctuations in fossil fuel prices (natural gas, oil, coal, and other). Moreover, it remains highly profitable as pricing in the electricity and capacity markets reflects the cost of heat generation, which includes fuel expenses.
- HPPs can adjust output in response to changing demand for power supply, which provides them with guaranteed load during the times of peak demand when electricity price is the highest.
- Low production cost of power generated by HPPs is the main reason why extra hydropower supplies and capacities are fully consumed within the unified energy systems.
- As a renewable resource, hydropower ranks among the most environmentally friendly sources of energy. Its use helps reduce emissions from thermal power plants and save hydrocarbons for future generations. Hydropower produced at RusHydro’s HPPs annually saves the planet 50 mt of CO2 emissions;
- To bring electricity tariffs in the Far East in line with the Russian base (average) rate, a surcharge was added to the capacity price in the first and second price zones of the WECM. RusHydro has been designated by the Russian Government to collect and transfer the surcharge amount to the Far East. This measure has helped reduce the accounts receivable from current consumers in the Far Eastern Federal District and attract investments in the region’s energy-intensive industrial projects to help create potential effective demand for electricity.

With the generating assets of the Group boasting a total installed hydropower capacity of 31 GW, RusHydro ranks among the world’s top hydropower generating companies.

### Competitive landscape

RusHydro Group is one of Russia’s leading electric power producers, with Rosatom State Corporation and the independent energy companies emerging from the restructuring of RAO UES of Russia acting as its main competitors.

### RusHydro’s competitors in Russia, GW

<table>
<thead>
<tr>
<th>Company</th>
<th>RusHydro</th>
<th>Gazprom Energoholding</th>
<th>Inter RAO</th>
<th>ROSATOM</th>
<th>EuroSibenergo</th>
<th>T Plus (IES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>39.4</td>
<td>38</td>
<td>34</td>
<td>28</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Output by RusHydro</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total installed capacity, Russia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total installed capacity, RusHydro</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share by Russia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity share</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### RusHydro’s share in Russia’s electric power market

<table>
<thead>
<tr>
<th>Year</th>
<th>Output in Russia</th>
<th>Output by RusHydro</th>
<th>Share</th>
<th>Total installed capacity, Russia</th>
<th>Total installed capacity, RusHydro</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,071,800</td>
<td>138,605</td>
<td>12.91</td>
<td>244,100</td>
<td>38,309</td>
<td>15.69</td>
</tr>
<tr>
<td>2017</td>
<td>1,073,700</td>
<td>139,820</td>
<td>13.02</td>
<td>246,868</td>
<td>38,479</td>
<td>15.59</td>
</tr>
<tr>
<td>2018</td>
<td>1,091,700</td>
<td>143,853</td>
<td>13.18</td>
<td>250,400</td>
<td>38,803</td>
<td>15.50</td>
</tr>
</tbody>
</table>

STRATEGY OF RUSHYDRO GROUP

Mission and values
RusHydro’s mission is to ensure efficient use of water resources and reliability of the Unified Energy System of Russia, as well as to support the social and economic development of the Far Eastern regions by providing its existing and prospective consumers with access to energy infrastructure.

Strategy and its implementation
RusHydro’s strategy seeks to implement the tasks outlined in the draft energy strategy of the Russian Federation until 2035. The strategy sets out development goals for the entire RusHydro Group along with specific objectives for their achievement.

RUSHYDRO GROUP’S CORPORATE VALUES

- Clean energy – ensuring environmental safety and protection of natural resources.
- Engineering culture – operating assets in a safe and reliable manner.
- Prosperous society – promoting reliability and infrastructure development, efficient use of water resources, utilization of hydropower potential and expanded use of renewable energy sources which contribute to the development of territories, economic growth and society’s welfare and prosperity.
- Reliable business – implementing social policy which supports the Company’s employees and residents across its footprint.
- Leading company – striving for the Company’s success and leadership by combining its employees’ efforts, resources and business components to achieve excellence in every aspect of the Company’s operations.
- United team – providing opportunities for the development and fair remuneration of the employees to build a competitive edge across RusHydro’s operations (team spirit, self-expression and unlocking employees’ potential).
- Developmental environment – implementing new technologies and offering infinite opportunities to foster further development.
- Young energy – promoting energy-related careers among schoolchildren.

RusHydro Group’s strategic goals

- Ensuring reliable and safe operations of the Company’s facilities
- Promoting stable development of the electricity generation
- Developing the Far Eastern energy sector
- Increasing the Company’s value

Key tasks

- Development and improvement of performance of production and technological complexes
- Investment policy and changing approaches to the investment program development
- Operating efficiency and transparency
- Improvement of the Far East assets management and the Far East energy development
- Human resources development

Strategic management system

The Company has a strategic management system in place, which links strategic management processes with the incentive system.

The main tools for implementing the strategy are RusHydro Group’s Long-term Development Program and the Value Growth Plan.

RusHydro’s Long-term Development Program for 2018–2022 has been prepared in accordance with the instructions of the President of the Russian Federation and the Russian Government.

RusHydro Group’s Long-term Development Program sets out the main principles and activities for the Company’s rapid growth, seeking to ensure efficient use of water resources, sustainability of Russia’s Unified Energy System, as well as social and economic development of the Russian regions, including the Far East, by providing its existing and prospective consumers with access to energy infrastructure.
RusHydro Group’s Value Growth Plan through to 2021 was approved by RusHydro’s Board of Directors on October 27, 2017 to maximize the Group’s value and its investment appeal for shareholders and investors. Value Growth Plan aims to increase RusHydro’s fundamental and market value as fundamental value drives market capitalization, which is particularly important in view of the fact that shares of RusHydro and other Russian power companies are currently traded with a significant discount to global majors.

To secure effective implementation of the Value Growth plan, it is planned to introduce a cost approach to the Company’s management for the management processes, systems and solutions to maximize value while ensuring safe operations at generating facilities. At the same time, the Value Growth Plan includes tasks and initiatives to streamline operational and investment activities, both controlled by the management and dependent on external factors.

Moreover, the Value Growth Plan outlines the Company’s key focus areas aimed at improving the openness and transparency of RusHydro Group in regards to the market participants and minimizing the gap between the fundamental and market value of the Company.

The focus area of the Company’s efforts in 2018 to pursue the Value Growth Plan was a change in approaches to investment and operating activities, as well as activities for the sale of non-core assets, the resulting effect has already exceeded RUB 53 bn.

In addition, in order to minimize the impact of ongoing non-monetary impairment on the amount of dividends paid, proposals were made for adjusting the Dividend Policy to establish the minimum level of dividend payout. The revised Dividend Policy was approved by the Company’s Board of Directors (Minutes No. 287 of April 22, 2019).

Strategic risks
The Company maintains a strategic risk register which identifies risk owners and is reviewed on an annual basis. The register is used to disclose risk-related information to shareholders, rating agencies, auditor and other stakeholders, and to further promote and control risk optimization initiatives.

Strategy implementation in 2018
The Strategy Implementation Plan for 2018 sets the following strategic goals.

Key strategic goals for 2018

<table>
<thead>
<tr>
<th>Goal</th>
<th>Progress</th>
</tr>
</thead>
</table>
| Ensuring reliability of existing assets and their upgrade, enhancing management efficiency with respect to the production complex | RusHydro Group’s Technical Policy is being developed to reconcile top level documents of RusHydro and RAO ES East aiming to determine the scope and development trends of technologies and technical solutions improving reliability and efficiency of RusHydro Group’s production facilities in the short and long term, while also ensuring safe operations. RusHydro Group’s Environmental Policy has been approved, which, along with the principles of environmental protection and safety, sets out key tasks aimed at improving the environmental management system.

Cost optimization plan is being implemented based on the results of the external independent cost audit of RusHydro and its subsidiaries. In 2017-2018, the economic effect of the initiatives to optimize operating costs and the management model amounted to RUB 10,552 mn and RUB 1,863 mn, respectively.

Improving the efficiency of the Far Eastern asset management system and developing the Far Eastern energy sector | The Company is preparing a development strategy for its scientific and engineering design complex.

Increasing the competitive edge of the engineering design complex | The Group’s Long-Term Development Program for 2018-2022 has been updated.

RusHydro has approved the concept of the Company’s positioning in the international market seeking to determine the main development areas of RusHydro Group’s international activities and its approaches to fostering a positive image of the Company in the global business arena.

Improving the corporate governance system | The number of corporate governance standards and principles set forth in the Corporate Governance Code and implemented in RusHydro’s corporate governance practices grew to 92.4%.

Expanding the talent pool | The Action Plan for the Introduction of Professional Standards into RusHydro’s Operations is being implemented, including 33 standard training programs for the professional development and retraining of faculty personnel at the Corporate Hydropower University based on the professional standards framework.

RusHydro Group’s employees completed 36,357 training courses.

RusHydro participated in the creation of Institute of Hydropower and Renewable Energy Sources (part of Moscow Power Engineering Institute) acting as a single center for education and training of engineers specializing in hydropower and renewables.

Value Growth plan
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KEY PERFORMANCE INDICATORS

The system of key performance indicators ("KPI") for RusHydro's management is based on national statutory requirements1 and is designed to improve the Company's performance and achieve the goals set by its shareholders. Since 2017, the management KPI system includes annual key performance indicators of the Management Board and key performance indicators of RusHydro’s Long-Term Incentive Plan ("LTIP"). KPIs are calculated and evaluated using the calculation and evaluation methodology (approved by the Board of Directors) for the Management Board’s KPI and the calculation and evaluation methodology for the KPI of RusHydro’s Long-Term Incentive Plan2.

In 2016, based on recommendations of an independent advisor3, the Company developed its annual KPI list, as well as calculation and evaluation methodology for the KPI of RusHydro’s Management Board, and KPI of the LTIP aimed at motivating the Company’s Management Board, and KPI of the LTIP methodology for the KPI of RusHydro’s Management Board. In 2017, the independent advisor updated the list of the LTIP KPI by introducing Earnings per share (EPS), RUB/share as a KPI with a 15% weight. The RusHydro Management Board’s KPI and the Company’s LTIP weight. The RusHydro Management Board’s KPI and the Company’s LTIP goals and thus balancing the interests of the Company’s management and shareholders. In 2019, the independent advisor updated the list of the LTIP KPI by introducing Earnings per share (EPS), RUB/share as a KPI with a 15% weight. The RusHydro Management Board’s KPI and the Company’s LTIP weight. The RusHydro Management Board’s KPI and the Company’s LTIP.

Annual KPI of RusHydro’s Management Board in 2018

The annual KPI of RusHydro’s Management Board for 2018 consist of five financial and two industry-specific indicators. Financial indicators of the annual KPI of RusHydro’s Management Board include a mandatory indicator required by the Federal Agency for State Property Management – return on equity (ROE). The Company’s financial indicators are calculated based on the Group’s consolidated financial statements prepared under the IFRS.

Resolution of the Board of Directors approved the target annual KPI of RusHydro’s Management Board for 2018 and target KPI of the second cycle of the Long-Term Incentive Plan for 2018–20202.

In 2019, the independent advisor updated the list of the LTIP KPI by introducing Earnings per share (EPS), RUB/share as a KPI with a 15% weight. The RusHydro Management Board’s KPI and the Company’s LTIP weight. The RusHydro Management Board’s KPI and the Company’s LTIP.

Target and actual KPI of RusHydro’s Management Board members

<table>
<thead>
<tr>
<th>KPI</th>
<th>Period</th>
<th>Target</th>
<th>Actual</th>
<th>Target KPI achievement</th>
<th>Weight, %</th>
<th>KPI achievement in 2018, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA, RUB mn</td>
<td>2017</td>
<td>97,993</td>
<td>110,323</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>170,932</td>
<td>181,526</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>ROE, %</td>
<td>2017</td>
<td>6.50</td>
<td>10.13</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>15.86</td>
<td>23.88</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>Share of procurement from small and medium businesses, %</td>
<td>2017</td>
<td>≥18</td>
<td>85</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>≥18</td>
<td>76</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Including: based on procurement from small and medium businesses only, %</td>
<td>2017</td>
<td>≥10</td>
<td>38</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>≥15</td>
<td>46</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Accident prevention</td>
<td>2017</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>number of production-related accidents</td>
<td>2017</td>
<td>≤5-year average3</td>
<td>14</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>≤5-year average3</td>
<td>9</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>number of major accidents</td>
<td>2017</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Adherence to the capacity commissioning schedule, funding and spending plan, %</td>
<td>2017</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Labor productivity, RUB '000/man-hour</td>
<td>2017</td>
<td>4.74</td>
<td>5.20</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>3.30</td>
<td>6.12</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Decrease in operating expenses (costs), %</td>
<td>2017</td>
<td>2</td>
<td>2.26</td>
<td>Achieved4</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>2</td>
<td>2.69</td>
<td>Achieved4</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

1 In the Key Performance Indicators section, a special methodology is used to calculate KPIs, and therefore the values of indicators with the same name may differ in other sections of the report.

2 The methodology for calculating the KPI of the Long-Term Development Program is disclosed in Appendix A to the Report.


4 According to the applicable calculation and evaluation methodology for the KPI of RusHydro’s Management Board, the EBITDA approved by resolution of the Board of Directors shall be calculated on the basis of RusHydro Group’s financial statements under the IFRS using the following formula: EBITDA = EBT + depreciation and amortization, gain on financial assets at fair market value, impairment of fixed assets, impairment of receivables, gain/loss on disposal of fixed assets, gains/losses on disposal of subsidiaries and joint ventures, and other non-cash operating income and expenses.
KPI of the Long-Term Incentive Plan

The first and second cycles of RusHydro’s LTIP consist of the following KPI: three financial indicators (including total shareholder return (TSR) as a mandatory indicator required by the Federal Agency for State Property Management) and an integrated innovative KPI.

The achievement of target KPI for the Long-Term Incentive Plan will be assessed upon expiry of the respective period.

Target KPI for the first LTIP cycle for 2017–2019

<table>
<thead>
<tr>
<th>KPI</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total shareholder return (TSR), %</td>
<td>100</td>
</tr>
<tr>
<td>Integrated innovative KPI, %</td>
<td>85</td>
</tr>
<tr>
<td>Free cash flow (FCF), RUB mn</td>
<td>–138,601</td>
</tr>
<tr>
<td>Earnings per share (EPS), RUB/share</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Target KPI for the second LTIP cycle for 2018–2020

<table>
<thead>
<tr>
<th>KPI</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total shareholder return (TSR), %</td>
<td>100</td>
</tr>
<tr>
<td>Integrated innovative KPI, %</td>
<td>85</td>
</tr>
<tr>
<td>Free cash flow (FCF), RUB mn</td>
<td>–138,601</td>
</tr>
<tr>
<td>Earnings per share (EPS), RUB/share</td>
<td>0.85</td>
</tr>
</tbody>
</table>

KPI of the Long-Term Development Program

RusHydro’s Long-Term Development Program consists of KPI established for 2018–2022.

The target KPI were calculated in accordance with RusHydro Group’s draft Consolidated Business Plan for 2018–2022 (including the consolidated investment program) and subject to the activities stipulated in the Group’s programs.

The list of KPI for RusHydro’s Long-Term Development Program for 2018–2022 includes the list of annual KPI of the Management Board and the list of LTIP KPI.

The KPI system is designed to improve the company’s performance and achieve the goals set by its shareholders.

39
INVESTMENT ACTIVITIES

Investment policy and its principles

The Company’s investments are governed by the Regulations on Managing Investing Activities Performed in the Form of Capital Investments.

RusHydro’s investment policy principles

- Compliance of investment decisions and projects with statutory requirements, building codes and regulations, and environmental standards
- Step-by-step approach to implementation of investment projects
- Compliance of investment decisions and projects with risk-return profiles approved by the Board of Directors
- Analysis of costs and benefits associated with alternative investment decisions (performed at the end of each stage in case of a change in key project metrics)
- Access to financing for all investment projects

Investment objectives

- Ensure stable power supply with no disruptions for the consumers
- Satisfy the growing energy consumption
- Upgrade energy facilities
- Reduce grid losses
- Reduce power equipment failures and wear and tear

Role of federal and regional governments in the investment program development

Our cooperation with the country’s federal and regional governments extends beyond developing and reviewing our investment program, with working on proposals and updates to energy policy papers (the “Policy Papers”) also on our agenda. These documents include:

- The schemes and programs to develop regional energy systems (the “DSPs”);
- The Scheme and Program to Develop the Unified Energy System of Russia (the “UES DSP”);
- The general layout of power generation facilities in Russia (the “General Layout”); and
- The territorial planning layout for the Russian power industry (the “TPL”).

Both the DSPs and the UES DSP focus on developing the grid infrastructure and the generating capacities, meeting the mid- to long-term demand for electricity and heat (capacity-wise), and creating a stable and favorable environment for investments in the electricity infrastructure.

The General Layout provides a foundation for organizing the power generation facilities and the grid infrastructure in a way to proactively balance production, consumption and capacities in UES Russia and technologically isolated local energy systems, prevent the forecasted power and capacity shortages, identify the key locations for placing transmission lines and substations, and ensure the normal operating conditions for UES Russia and the actual output from new power plants.

The TPL aims to consolidate data on prospective energy facilities of federal importance, including their types, purposes, names, key specifications, and locations.

RusHydro Group works to ensure that the Policy Papers contain only the most recent information on its energy facilities and plans, providing materials, commentary and suggestions as necessary.

The Group’s cooperation with regional governments extends to drafting proposals and updating information on heating layouts for Russian cities and towns. Developing and updating heating layouts for cities and towns across the Far Eastern Federal District ensures efficient and safe performance of heat supply systems and help improve them as heat suppliers within RusHydro Group upgrade their fixed assets and implement energy conservation and efficiency initiatives.

RusHydro’s subsidiaries have participated in public hearings on heat supply schemes for the Khabarovsk, Vladivostok and Artyom urban districts and other Far Eastern municipalities.
Long-term Program for Replacement of Retiring Capacities

The Long-term Program for Replacement of Retiring Capacities and Power System Development in the Far East drafted by RusHydro’s management aims to ensure a stable and robust power supply to existing and prospective customers in the Far Eastern Federal District by formulating solutions to develop the region’s energy infrastructure as necessary.

The Program provides a foundation for developing the electrical power industry in the Russian Far East.

Its key objectives include:
- drafting capacity retirement and replacement proposals (including possible alternatives);
- drafting proposals to satisfy the prospective demand and develop the energy infrastructure;
- identifying the best courses of action in respect of the proposed initiatives; and
- assessing the economic effect of the Program.

The Program includes projects to build or upgrade energy facilities in the Russian Far East with a view to replacing 1.6 GW of retiring capacities and satisfy the prospective demand from regional energy systems:
- Chaunskaya CHPP to be decommissioned (30 MW)
- Yakutskaya GRES-1 to be decommissioned (368 MW)

The second stage of Yakutskaya GRES-2 to be commissioned (226 MW);
- Ust-Srednekanskaya HPP to be commissioned (260 MW, the fourth hydropower unit, new runners);
- Khabarovskaya CHPP-1 to be decommissioned (435 MW) Khabarovskaya CHPP-4 to be commissioned (320 MW);
- Artyomovskaya CHPP to be decommissioned (400 MW) Artyomovskaya CHPP-2 to be commissioned (420 MW);
- Vladivostokskaya CHPP-2 to be upgraded (bringing the installed capacity of heat power units No. 1, 2, 3 to 360 MW).

The Program seeks to provide a rationale for including RusHydro Group’s projects in a program being developed by the Russian Government to raise funds for upgrading the heat generation infrastructure, and a foundation for proposals related to investment programs within the Group.

Design and survey works are currently underway for the stage 2 of Yakutskaya GRES-2, Artyomovskaya CHPP-2, Khabarovskaya CHPP-4 construction projects and Vladivostokskaya CHPP-2 upgrade project; the project parameters will be specified following their completion. Construction (upgrade) of these generation facilities is planned to be carried out by introducing the capacity price surcharge as part of the program to upgrade generation facilities approved by the Government of the Russian Federation.

In order to implement the CHPP construction project in Pevek, it is necessary to determine the budget financing mechanisms for the financial standing of RusHydro to remain unaffected. The corresponding instruction is reflected in the Minutes of the meeting with Dmitry Kozak, Deputy Chairman of the Government of the Russian Federation (Minutes No. DK-P9-250pr (section I, para. 8) dated December 12, 2018).

Construction of Ust-Srednekanskaya HPP is planned as part of the consolidated investment program of RusHydro Group and will be financed internally.

RusHydro’s updated investment program for 2018 and investment program for 2019-2028 were approved by the Russian Ministry of Energy’s Order No. 68 On Approval of RusHydro’s Investment Program for 2019-2028 and Amendments to RusHydro’s Investment Program Approved by the Russian Ministry of Energy’s Order No. 34@ of December 29, 2017 of October 22, 2018.

The Group’s updated consolidated investment program for 2018 was approved by RusHydro’s Board of Directors (Minutes No. 276 of October 4, 2018) as part of RusHydro Group’s Consolidated Business Plan for 2018. In addition, the updated Business Plan for 2018, as approved by the Board of Directors (Minutes No. 281 of December 27, 2018), included updates to RusHydro’s investment program for the same year.

The draft RusHydro Group’s consolidated investment program for 2020-2024 and for 2019 (revised) was reviewed by RusHydro’s Board of Directors (Minutes No. 285 of March 29, 2019).

There are no investments with the projected return exceeding 10% per year.

RusHydro’s updated investment program for 2018 and 2019 includes proposals related to new investments in the Rdingsh Group’s projects in a program being developed by the Russian Government to raise funds for upgrading the heat generation infrastructure, and a foundation for proposals related to investment programs within the Group.

Spending on the consolidated investment program in 2018 totaled RUB 82.8 bn, including RUB 53.0 bn for RusHydro Group’s investment projects (without JSC RAO ES East Subgroup’s) and RUB 29.8 bn for JSC RAO ES East Subgroup.

NEW CAPACITIES WERE COMMISSIONED, INCLUDING 345.2 MW IN POWER GENERATION, 442.47 GCAL/H IN HEAT, 972.23 MVA OF TRANSFORMER CAPACITIES, AND 1,336.15 KM OF POWER LINES.

Key investment areas under RusHydro Group’s consolidated investment program in 2018

<table>
<thead>
<tr>
<th>Spending, RUB mn (incl. VAT)</th>
<th>CAPEX, RUB mn (excl. VAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>82,826</td>
<td>79,714</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction of new facilities</th>
<th>Rehabilitation and modernization</th>
<th>Utility connection</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>63,829</td>
<td>25,186</td>
<td>6,741</td>
<td>4342</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction of new facilities</th>
<th>Rehabilitation and modernization</th>
<th>Utility connection</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>62,365</td>
<td>25,186</td>
<td>6,741</td>
<td>5,443</td>
</tr>
</tbody>
</table>

- Construction of new facilities
- Rehabilitation and modernization
- Utility connection
- Other

- CAPEX mean the capital investments recognized on the basis of amounts specified in delivery and acceptance certificates signed with suppliers and contractors and accounted for in the respective project administration expenses.

1 The Long-term Program for Replacement of Retiring Capacities was reviewed at RusHydro’s Board of Directors meeting on October 21, 2018 (Minutes No. 279 of October 26, 2018)
Investments in construction of new facilities in 2018

<table>
<thead>
<tr>
<th>Spending, RUB mn (incl. VAT)</th>
<th>43,829</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority projects in the Russian Far East</td>
<td>12,704</td>
</tr>
<tr>
<td>Zaramagskiye HPPs</td>
<td>9,648</td>
</tr>
<tr>
<td>Off-site infrastructure for priority projects in the Russian Far East</td>
<td>9,655</td>
</tr>
<tr>
<td>Ust-Srednekanskaya HPP</td>
<td>6,519</td>
</tr>
<tr>
<td>Nizhne-Bureyskaya HPP</td>
<td>3,500</td>
</tr>
<tr>
<td>Vostochnaya CHPP</td>
<td>3,455</td>
</tr>
<tr>
<td>SHPPs in the North Caucasian Federal District</td>
<td>2,320</td>
</tr>
<tr>
<td>Other</td>
<td>3,455</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spending by source of funds in 2018, RUB mn (incl. VAT)</th>
<th>82,826</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own</td>
<td>72,886</td>
</tr>
<tr>
<td>Raised</td>
<td>5,516</td>
</tr>
<tr>
<td>Federal</td>
<td>4,424</td>
</tr>
</tbody>
</table>

CAPEX, RUB mn (excl. VAT) | 42,343

<table>
<thead>
<tr>
<th>Capacity commissioning in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Power generation, MW</td>
</tr>
<tr>
<td>Heat, Gcal/h</td>
</tr>
<tr>
<td>Power lines, km</td>
</tr>
<tr>
<td>Transformer capacities, MVA</td>
</tr>
</tbody>
</table>

Investment plans for 2019

| Planned financing in 2019, RUB mn (incl. VAT) | 126,221 |
|-----------------------------------------------|
| Construction and modernization | 63,240 |
| Rehabilitation and modernization | 44,911 |
| Utility connection | 11,810 |
| Other | 6,260 |

<table>
<thead>
<tr>
<th>Targets for capacity commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Power generation, MW</td>
</tr>
<tr>
<td>Heat, Gcal/h</td>
</tr>
<tr>
<td>Transformer capacities, MVA</td>
</tr>
<tr>
<td>Power lines, km</td>
</tr>
</tbody>
</table>

Construction of energy facilities

Key investment projects and their impact on local economies across the Group’s footprint

- **Zaramagskiye HPP**
  - Installed capacity: 356 MW
  - Average annual output: 842 mn kWh
  - Year of commissioning: 2019
  - Social and economic effects: Higher tax revenues at every government level.
  - Supply stability effects: Addressing the electricity shortage in the Republic of North Ossetia – Alania.
  - Addressing supply disruptions that might be experienced by remote communities.

- **Nizhne-Bureyskaya HPP**
  - Installed capacity: 320 MW
  - Average annual output: 1,670 mn kWh
  - Year of commissioning: 2019
  - Managing load irregularities of Bureyskaya HPP, contributing to power generation and supply within the Unified Energy System of the East, and ensuring flood control.

- **Ust-Srednekanskaya HPP**
  - Installed capacity: 570 MW (142.5 MW third stage commissioned in 2018)
  - Average annual output: 2,553 mn kWh
  - Year of commissioning: 2022
  - Social and economic effects: Generates power for Matrosov Mine (the Nataika gold deposit) to support the mining industry in driving the region’s economic growth.
  - Higher tax revenues at every government level.
  - Making the isolated Magadan energy system more reliable.

The RUB 7.46 bn difference between the actual spending under the consolidated investment program and the 2018 target was mainly attributable to updates on the work schedules for rehabilitation and modernization, with the reasons including more time required for contractors to complete their assignments and reductions in project costs following approval of design documentation (RUB 4.04 bn); and updates on the work schedules for utility connection upon customer requests (RUB 2.45 bn).
Comprehensive modernization, rehabilitation, and upgrade programs

### Comprehensive Modernization Program

As many large HPPs were commissioned in the 1950s and 1960s, the need arose in the early 2000s to upgrade or replace the existing equipment. Tough economic conditions prevented RusHydro from replacing obsolete and worn-out equipment and forced it to focus on maintenance and partial replacements instead.

Since mid-2000s, a number of RusHydro’s HPPs began replacing equipment on a case-by-case basis, but the overall trend of ageing prevailed.

This was true until December 2011, when the Board of Directors approved the Comprehensive Modernization Program to upgrade the Company’s power generation facilities by 2025. Its key priority is to ensure that no core generation equipment with expired safe operation life remains in place.

#### Key results of RusHydro’s Comprehensive Modernization Program

#### Results, pcs

<table>
<thead>
<tr>
<th>Type of equipment</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbines</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Generators</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Transformers</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>High-voltage circuit breakers</td>
<td>76</td>
<td>12</td>
</tr>
<tr>
<td>Hydraulic structures</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>Secondary switches</td>
<td>342</td>
<td>191</td>
</tr>
<tr>
<td>Secondary equipment</td>
<td>360</td>
<td>178</td>
</tr>
</tbody>
</table>

#### Additions to installed capacity, MW

<table>
<thead>
<tr>
<th>HPP</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zhigulevskaya HPP</td>
<td>10.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Saratovskaya HPP</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Novosibirskaya HPP</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Votkinskaya HPP</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Cascade of Verkhnevolzhskie HPPs</td>
<td>10.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Nizhegorodskaya HPP</td>
<td>3.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55.5</strong></td>
<td><strong>42.5</strong></td>
</tr>
</tbody>
</table>

### Health of RusHydro’s core equipment in 2018, %

<table>
<thead>
<tr>
<th>Equipment</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbines</td>
<td>78.41</td>
</tr>
<tr>
<td>Generators</td>
<td>76.15</td>
</tr>
<tr>
<td>Transformers</td>
<td>67.50</td>
</tr>
</tbody>
</table>

Over the five decades since its commissioning in 1962, this unit had worn down to a significant extent. It took about a year to replace its turbine, generator and secondary equipment and upgrade its automatic control system. The new hydropower unit was manufactured by Power Machines – a Russian company.

In 2018, Votkinskaya HPP’s hydropower unit No. 7 was upgraded as part of RusHydro’s Comprehensive Modernization Program, becoming the second fully modernized hydropower unit at the plant.
At Novosibirskaya HPP, the turbine replacement was followed by commissioning of the hydropower unit No. 14 following its upgrade, which included the recovery of the adjustable blade pitch and the replacement of the generator stator.

Rehabilitation and modernization program

The rehabilitation and modernization program draws upon the Comprehensive Modernization Program. While focused on ensuring adequate maintenance and commissioning new capacities, it differs from the Comprehensive Modernization Program in that it looks to replace equipment on a case-by-case basis, bringing more advanced alternatives to RusHydro's facilities. Its other priorities include extending lifespans of the core generation equipment, reducing production costs and enhancing the overall economic efficiency.

Driven by the need to ensure long-term reliability throughout its technological complex, JSC RAO ES East Subgroup runs its own rehabilitation and modernization program (as part of its investment program). The development and implementation of this initiative is regulated by RusHydro Group’s Technical Policy.

The rehabilitation and modernization program saw Anadyr CHPP launch its first gas power boiler under a gasification agreement signed by RusHydro and the Government of the Chukotka Autonomous Area in May 2017 to carry out an extensive upgrade of the plant’s equipment and build gas pipelines. It took less than a year to build the infrastructure for an on-site gas pipeline and gas distribution station, implement key utility systems and rehabilitate the boiler to feed on natural gas. All gas equipment has been pre-commissioned successfully. The plant feeds on the natural gas coming from the Zapadno-Ozernoye field, which is operated by Sibneft-Chukotka.

RusHydro’s Dagestan branch commissioned Matelinskaya HPP’s hydropower unit No. 2. Now all HPP’s turbines were replaced (hydropower unit No. 1 was upgraded in 2015).

Program for the development of energy based on renewables

Using renewables is a top priority for RusHydro Group, which keeps ramping up installed capacities by building new HPPs and commissioning new power generation facilities. RusHydro was among the first in Russia to start developing projects relying on geothermal, solar and wind power generation. One of RusHydro Group’s objectives for 2016–2020 with an outlook until 2025 is to improve energy efficiency by using alternative energy sources. Most of the projects are implemented in isolated energy hubs of the Far Eastern Federal District outside of the Unified Energy System.

Solar and wind power in isolated energy hubs

Since 2012, RusHydro Group has launched 19 solar power plants with a total capacity of 1.6 MW and four wind power plants with a total capacity of 3.6 MW.

Given the local specifics, none of the projects are standard by design, the 1 MW northernmost SPP in Batagay is not an exception. Our R&D specialists have designed a prototype wind diesel and solar diesel power stations and tested a range of equipment, including energy storage units, all to be used in isolated energy hubs of the Far Eastern Federal District.

Commissioned in November 2018, a unique 900 kW wind power plant in Tiksi, an isolated polar settlement in the Republic of Sakha (Yakutia), generates green power for over 4,500 residents. This facility ensures a more stable power supply in Tiksi and makes Yakutia’s Bulunsky District less dependent on expensive diesel fuel deliveries – expected to shrink by 500 tonnes in annual terms. Its three unique turbines were designed to operate in an Arctic climate at temperatures as low as -50ºC and withstand winds of up to 70 m/s. Manufactured by Japan’s Komahaltec, each turbine is 41.5 m high and has 33 m blades. In 2019, RusHydro will continue working to build a diesel power plant equipped with three 3 MW diesel generators and an energy storage system. Once the project is completed, all these systems will be integrated into a single power generation complex.

Smaller HPPs

RusHydro is active in developing smaller HPPs, which are vital for remote, hard-to-reach and power-deficient areas as well as for local water supply to towns and settlements. These plants are sustainable and provide additional benefits, including the opportunity to store drinking water for future use. In Russia, smaller HPPs are defined as those with a capacity of 30 MW or less (as per GOST R51238-98). They are built on rivers as well as on lake spillways, irrigation channels, etc.

2018 saw the commissioning of a 1.26 MW SHPP on the Bolshoy Zelenchuk River.

### Ongoing RES projects

<table>
<thead>
<tr>
<th>Project</th>
<th>RES</th>
<th>Capacity, MW</th>
<th>Year of commissioning</th>
<th>Indirect economic impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>900 kW wind power plant in Tiksi, Bulunsky District</td>
<td>Wind</td>
<td>0.9</td>
<td>2019</td>
<td>Replacing the output of a local diesel power plant (operated by JSC Sakha Energy’s Bulun Electric Power Grid) with renewable energy and reducing the consumption of expensive diesel fuel as a result. In addition, a 1,200 kW diesel power plant will be constructed, providing an energy storage unit for the wind diesel power station in Tiksi, Bulunsky District.</td>
</tr>
<tr>
<td>Krasnogorskaya SHPP</td>
<td>Water</td>
<td>24.9</td>
<td>2021</td>
<td>Addressing shortages within the energy system of Karachay-Cherkessia.</td>
</tr>
<tr>
<td>Pravokubanskaya SHPP</td>
<td>Water</td>
<td>24.9</td>
<td>2022</td>
<td></td>
</tr>
<tr>
<td>Verkhnebalkarskaya SHPP</td>
<td>Water</td>
<td>10</td>
<td>2019</td>
<td>Enhancing the power supply to the Balkarian hub.</td>
</tr>
<tr>
<td>Ust-Ozhegotinskaya SHPP</td>
<td>Water</td>
<td>5.6</td>
<td>2019</td>
<td>Allleviating electricity shortages in Karachay-Cherkessia and enhancing the power supply by using water flows from the Ust-Ozhegotinskij Main Hydrotechnical Complex.</td>
</tr>
</tbody>
</table>
RusHydro Group construction quality assurance

Construction and installation quality assurance is performed to ensure the following:
- compliance with the Urban Development Code, design documentation, technical regulations, and results of engineering surveys; and
- reliable and trouble-free operation of energy facilities and lower unproductive costs after commissioning.

Quality assurance:
- means developing engineering requirements for deliverables and verifying their compliance with these requirements and internal and statutory regulations;
- is performed by all parties involved in construction, including the general contractor, developer/administrator and designer (during field supervision);
- includes incoming, operational and acceptance inspections, progress control, final checks and issuing quality assurance reports; and
- involves external supervision by the Federal Environmental, Industrial and Nuclear Energy Supervision Service and other government agencies in the field of industrial supervision.

Regulation and supervision

Our quality assurance procedures for construction and installation, materials, structures and assemblies are compliant with Russian laws, industry standards and regulations, internal engineering standards, and regulatory requirements for design documentation.

In addition to primary and secondary federal legislation, all construction works are subject to both industry and RusHydro’s own internal quality assurance standards. Our key design quality management principles and the employees in charge are specified in the Regulations on Managing and Monitoring Investment Projects during the Development of Construction of RusHydro Group’s New Facilities as approved by RusHydro’s Order No. 1021 of December 28, 2018. The Supervisory Board of the Uniform System of Conformity Assessment for Health, Safety and Environment, and Safety in the Energy and Construction Industries is developing the Uniform System of Conformity Assessment in Construction (Modernization and Renovation of Immovable Property) and requirements in respect of the corresponding control activities. Compliance monitoring is performed by the Federal Environmental, Industrial and Nuclear Energy Supervision Service.

Before a power plant is commissioned, it receives an automated diagnostic control system that will read and process measurements to help analyze the status of facilities across the hydrotechnical complex. After completion of a hydraulic structure, its measuring equipment, along with all data collected, is handed over by the construction company to the project administrator.

Quality assurance systems for new energy facilities are developed individually under agreements with the respective general contractors.

For the first stage of Sakhalinskaya GRES-2, the general contractor (JSC HPC Mosenergo) has developed and implemented a quality management system that is now certified under ISO 9001:2008, ISO 14001:2004 (GOST R ISO 14001-2007); and the project administrator and developer (JSC Sakhalinskaya GRES-2) has adopted construction and installation quality assurance guidelines for building control.

For the CHPP in Sovetskaya Gavan, the project administrator and developer (JSC CHPP in Sovetskaya Gavan) has adopted construction and installation quality assurance guidelines for building control; and
- contractors (JSC Ust-SrednekanGESstroy, JSC Hydroremont – VCC, ARSENAL PLUS, and Corporation of JSC ESKM) have developed a quality assurance system to facilitate planning and management in the corresponding domain.

- For Zagorskaya PSPP-2, Nizhnevurenskaya HPP, List-Srednekanskaya HPP and Zaramagkyi HPP, the respective project administrators have developed deliverable acceptance regulations and quality assurance systems. For the SHPPs in the Stavropol Krai and Karachay-Cherkessia, the respective project administrators have adopted construction and installation quality assurance guidelines for building control.

Both JSC Chirkeigesstroy and JSC Ust-SrednekanGESstroy have developed and implemented quality management systems for all hydropower facilities they have been assigned to as the general contractor. The systems are now certified under ISO 9001:2008 and ISO 14001:2004 (GOST R ISO 14001-2007).

The Company adheres to the corporate social responsibility concept as defined by ISO 26000. According to the standard, a company is responsible for the impact of its decisions and operations on society and the environment and must act in a transparent and ethical way that:
- promotes sustainable development, including public health and well-being;
- takes into account the expectations of stakeholders;
- complies with applicable laws and international standards of conduct;
- is integrated into the operation of the entire company and is applied with regard to its stakeholders.

One of RusHydro Group’s strategic goals is to ensure the reliable and safe operation of its facilities, taking into account the economic feasibility of funds allocated for mitigating possible risks and reducing potential damage. The Company is committed to increasing the share of renewables in the country’s energy mix by means of commissioning new facilities and increasing the generation of clean energy, while also improving energy efficiency.

RusHydro Group’s another priority is its contribution to the development of the regions where it operates. RusHydro Group facilitates the growth of welfare, creating new jobs, paying taxes, and delivering positive multiplier effects by developing energy infrastructure (connection of new consumers to power grids, water supply, etc.). RusHydro Group supports education, culture, sports, and environmental protection and provides assistance to socially vulnerable population groups across its footprint.

A comprehensive approach to addressing RusHydro Group’s sustainable development objectives ensures the most efficient transition to low-carbon development with minimal environmental impact, as well as compliance with all occupational health and safety standards for employees and residents across the Company’s operations.
IN THE COUNTRY’S ENERGY MIX
OF RENEWABLES

TO INCREASING THE SHARE

THE COMPANY IS COMMITTED

Operation of RusHydro’s different

Responsibility for providing control,

Methodology support and regulation

of RusHydro Group’s sustainable

low-carbon development, as well

as preserving cultural heritage

sites and biological diversity in

accordance with Order No. 420 of

June 15, 2018, is assigned to member

of the Management Board, First Deputy

General Director – Chief Engineer.

Sustainable development activities are

carried out by specialized units

within the area of their functional

responsibility:

» Social responsibility – personnel

management unit;

» Cooperation with government

authorities in the regions of

the Company’s operations and

creation of a favorable social

environment for the Company’s

efficient development – corporate

communications unit, Far East

Division;

» Economic responsibility – unit of

economic planning and investments,

unit of production activity, unit

of capital construction, and unit

of financial and corporate law

management;

» Power generation, improvement of

energy efficiency and environmental

responsibility – unit of production

activity; charity – corporate

communications unit;

» Providing charitable aid – corporate

communications unit.

Operation of RusHydro’s different

subdivisions and subsidiaries is

coordinated at regular meetings

of the working group on sustainable
development to monitor the efficiency

of implementation of key tasks in sustainable
development for the period through

to 2020 approved by RusHydro’s Order

No. 614 of September 17, 2017.

Key sustainable development issues are

reviewed at the meetings of the Board

of Directors and the Company’s

Management Board. The Committee

on Reliability, Energy Efficiency and

Innovation under RusHydro’s Board

of Directors plays an important role

in RusHydro’s sustainable development

management and also preliminary

reviews matters of long-term

development of hydropower and energy

based on other renewables (“RES”), as

well as development of functional policies

(tenchnical, environmental, etc.), corporate

standards in technical regulation, etc.

The Company has adopted a number

of internal regulations outlining and

governing the approach to sustainable
development and corporate social

responsibility (“CSR”). In 2018,
a new number of internal regulations

on environmental protection and social

development were approved, including

the new consolidated Environmental

Policy of RusHydro Group (approved

by Minutes No. 276 of the Board of

Directors of August 9, 2018), as well as

the Uniform Regulations on RusHydro

Group’s Procurements (approved by

Minutes No. 277 of the Board of Directors

of October 4, 2018).

Internal regulations

<table>
<thead>
<tr>
<th>CSR area</th>
<th>Internal regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable production</td>
<td>RusHydro Group’s Development Strategy until 2020 with an outlook until 2025; RusHydro’s Long-term Development Program for 2018–2022; RusHydro’s Regulations on the Working Group on Technical Standards; Regulations on Managing Investing Activities Performed in the Form of Capital Investments; RusHydro’s Regulations on the Standardization System; RusHydro’s Regulations on Internal Controls.</td>
</tr>
<tr>
<td>Procurement</td>
<td>The Uniform Regulations on RusHydro Group’s Procurements and other internal regulations developed to provide further details, including the Methodology for Reviewing the Reliability (Business Reputation) and Financial Standing of the Bidders.</td>
</tr>
<tr>
<td>Corporate ethics and anti-corruption</td>
<td>RusHydro’s Code of Corporate Ethics; RusHydro’s Anti-Corruption Policy; RusHydro’s Regulations on the Prevention and Management of Conflicts of Interest; Regulations on the Procedure to Report Presents Received by RusHydro’s Employees during Official Events, Business Trips, etc.; RusHydro’s Regulations on the Committees for Compliance with the Corporate Ethics Standards and Management of Conflicts of Interest; Rules of RusHydro’s Line of Trust Operation; RusHydro’s Comprehensive Program of Anti-Corruption Activities for 2016–2019.</td>
</tr>
<tr>
<td>Environmental impact</td>
<td>RusHydro Group’s Environmental Policy; RusHydro’s Program of Energy Saving and Increased Energy Efficiency through to 2020; RAO ES East Subgroup’s Energy Saving and Energy Efficiency Improvement Policy.</td>
</tr>
<tr>
<td>Health and safety</td>
<td>RusHydro’s Health and Safety Policy; Policies on occupational health and safety of RusHydro’s subsidiaries.</td>
</tr>
<tr>
<td>Charity</td>
<td>The Company’s Charity and Sponsorship Policy; Charity and Sponsorship Policy of the Company’s Subsidiaries.</td>
</tr>
<tr>
<td>Innovative development</td>
<td>Innovative Development Program of RusHydro Group for 2016–2020 with an outlook until 2025; RAO ES East’s Innovative Development Program for 2016–2020 with an outlook until 2025; Regulations on Design and Implementation of RusHydro’s Innovative Development Program; Regulations on R&amp;D Management Process in RusHydro’s Operations; Regulations on the Intellectual Property Management Process in RusHydro Group; Regulation on Planning and Monitoring the Progress of Activities as Part of the Innovative Development Programs of RusHydro Group and RAO ES East; Regulation on Preparation, Adjustment and Monitoring of Implementation of Procurement Plans for Innovative and/or High-Tech Products; Methodology for Assessment of Technical and Economic efficiency of Innovative Projects and the Temporary Procedure for Assessment of Technical and Economic Efficiency of Innovative Projects Implemented as R&amp;D.</td>
</tr>
<tr>
<td>Personnel management</td>
<td>RusHydro’s Social Policy; Regulations on RusHydro’s Employee Training; Regulations on Personnel Certification at RusHydro’s Branches; Regulations on the Database Formation of Candidates to Be Recruited at RusHydro’s Branches; Regulations on RusHydro’s Talent Pool; Concept of advanced human resource development From School to Workplace.</td>
</tr>
</tbody>
</table>
Compliance of the Group’s operations with the UN Sustainable Development Goals

Sustainable development activities of RusHydro Group are focused on achieving a number of Sustainable Development Goals (SDGs) adopted by the UN in September 2015.

The Company has identified 13 SDGs which are particularly important for its operations, while sharing other SDGs and contributing to their achievement.

In 2017, RusHydro joined the UN Global Compact, the largest business initiative in sustainable development. The Company shares ten principles on human rights, labor, anti-corruption, and the environment, and strives to ensure that the needs of the current generation will not compromise the opportunities of those who will come next.

On June 27, 2018, the Annual General Meeting of Shareholders resolved on RusHydro’s participation in the National Network of Global Compact Association. At the General Meeting of the members of the National Network of Global Compact Association held on September 26, 2018, Boris Bogush, Member of the Management Board, First Deputy General Director – Chief Engineer, was elected member of the Governing Board.

RusHydro’s main goals, objectives and corporate programs for achieving sustainable development goals

**Goals and objectives**

<table>
<thead>
<tr>
<th>Programs, projects and initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECONOMIC TARGETS</strong></td>
</tr>
<tr>
<td>Regulatory framework of water regimes and protection of territories and population from floods.</td>
</tr>
<tr>
<td>Affordable energy.</td>
</tr>
<tr>
<td>Increasing the share of renewables in the energy mix.</td>
</tr>
<tr>
<td>Maximization of value for the state, shareholders, the Company and its employees.</td>
</tr>
<tr>
<td>Innovative development.</td>
</tr>
<tr>
<td>Energy conservation and efficiency.</td>
</tr>
<tr>
<td>Implementing program of efficient collaboration with the System Operator and the Federal Water Resources Agency in terms of planning and managing the HPP water and energy regime.</td>
</tr>
<tr>
<td>Ensuring the functioning of the tariff adjustment mechanism in five out of nine regions of the Far Eastern Federal District to the average Russian level of RUB 1,3 per kWh. Acting as the schemer’s operator, RusHydro collects the surcharge to the capacity price (KOM price) and transfers these funds in full to budgets of regions of Russian Federation to energy companies of the Far Eastern Federal District to offset lost revenue caused by sales of power at reduced tariffs.</td>
</tr>
<tr>
<td>Launching new energy facilities (including HPPs and renewables).</td>
</tr>
<tr>
<td>Implementing RusHydro Value Growth Plan through to 2021 aimed at increasing the Company’s fundamental and market value.</td>
</tr>
<tr>
<td>Implementing Innovative Development Program of RusHydro Group for 2016–2020 an outlook until 2025.</td>
</tr>
<tr>
<td>Implementing the Concept for Reforming RusHydro’s Scientific and Design Capacities.</td>
</tr>
<tr>
<td>Implementing the Program of Energy Saving and Increased Energy Efficiency of RusHydro and RAO ES East through to 2020.</td>
</tr>
<tr>
<td>Achieving and improving ratings from the leading ratings agencies as recognition of socially responsible investments.</td>
</tr>
<tr>
<td>Implementing charity programs of the Company and its subsidiaries.</td>
</tr>
</tbody>
</table>

**ENVIROMENTAL TARGETS**

<table>
<thead>
<tr>
<th>Programs, projects and initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributing to low-carbon development.</td>
</tr>
<tr>
<td>Preserving biodiversity.</td>
</tr>
<tr>
<td>Conserving and restoring fish reserves in water bodies.</td>
</tr>
<tr>
<td>Promoting efficient water use.</td>
</tr>
<tr>
<td>Implementing the Environmental Policy in terms of ensuring low-carbon development.</td>
</tr>
<tr>
<td>Developing target indicators to reduce greenhouse emissions, and mechanisms for their achievement.</td>
</tr>
<tr>
<td>Developing and implementing a biodiversity conservation program.</td>
</tr>
<tr>
<td>Carrying out initiatives aimed at restoring fish reserves. Installing fish protection equipment.</td>
</tr>
<tr>
<td>Implementing RusHydro Group’s programs in terms of rational use of water resources.</td>
</tr>
<tr>
<td>Carrying out the oBEREGAI annual program for cleaning up rivers and reservoirs.</td>
</tr>
<tr>
<td>Creating tourist route in protected natural areas.</td>
</tr>
</tbody>
</table>
Stakeholder relations

Stakeholder relations principles and approaches

In the course of its operations, RusHydro strives to balance the interests of all its stakeholders, ensuring the most complete and timely disclosure of relevant information.

To this end, in preparation of the integrated annual report for 2018, RusHydro Group’s stakeholders ranking map was updated following a survey among internal and external stakeholders. Those who scored over 2.8 points as part of the assessment of stakeholder group impact on RusHydro Group (and vice versa) were recognized as the key stakeholders. *(102–42)*

In building a framework for successful relations with stakeholders, RusHydro Group follows four fundamental principles of the AA1000 *(102–42)* Series of Standards:

- **Inclusivity** – relates to identifying stakeholders and their needs and arranging interaction with them on material sustainability topics.
- **Materiality** – relates to identifying and prioritizing the most relevant sustainability topics, taking into account the effect each topic has on the stakeholders.
- **Responsiveness** – relates to providing timely reaction from the Company to events related to material sustainability topics, expressed in specific actions or communication with the stakeholders.
- **Impact** – relates to assessing the Company’s positive and/or negative effect on sustainable development aspects and stakeholders’ interests.

### Stakeholder map *(102–40)*

![Stakeholder map](image)

**Key stakeholders**

1. Shareholders and investors
   - **Stakeholders’ interests:** economic efficiency; business resilience; business process transparency
   - Responses to requests and relations stakeholders in 2018
   - Preparing and holding Annual General Meetings of Shareholders
   - Preparing IR presentations and arranging IR activities
   - Public reporting
   - Maintaining business contacts with analysts of investment banks and other financial institutions
   - Preparing press releases and information materials about the Company
   - Arranging meetings between investors and the Company’s management
   - Preparing and conducting roadshows
   - Disclosing information on the Company and its subsidiaries’ websites in accordance with the disclosure rules as per resolutions of the Government of the Russian Federation
   - The Investors section is available on the Company’s website at: [http://www.eng.rushydro.ru/investors/](http://www.eng.rushydro.ru/investors/)

2. Customers and consumers
   - **Stakeholders’ interests:** reliable power supply; improved quality of products and services; high standards of service
   - Online consultations on the websites of sales companies
   - Line of Trust
   - Mobile service centers
   - Online reception desk
   - Contact center
   - Personal accounts for consumers of guaranteed suppliers
   - Developing front offices
   - Single information and settlement centers
   - Carrying out activities to change the tariff system in the Far East in order to switch to long-term tariff regulation methods.
   - Implementing agreements related to regional energy development, ensuring sustainable power and heat supply to consumers, as well as social and economic activities.

3. Business partners, suppliers and contractors
   - **Stakeholders’ interests:** fair competition and responsible market behavior; transparent operations, including procurement
   - Forums, exhibitions, conferences, dialogues
   - Open and competitive procurement procedures
   - Joint projects
   - RusHydro, the Government of the Sakha Republic (Yakutia) and Japan’s New Energy and Industrial Technology Development Organization signed memorandum on the construction of a wind diesel power station in the Tiksi settlement.
   - RusHydro, the Government of the Magadan Region and Polus Magadan signed cooperation agreements.
4. Environmental organizations

**Stakeholders’ interests:** environmental protection

- Development and approval of low-carbon development goals as part of RusHydro Group’s Environmental Policy.
- Improvement of the volunteer movement and initiatives aimed at environmental protection.
- Environmental awareness raising.
- Implementation of biodiversity protection programs.

For more information, see the Environmental Protection section on p. 131.

5. Employees and trade unions

**Stakeholders’ interests:** professional and career development; safe working conditions; solid remuneration

- Personnel training
- Social support of employees
- Communication through internal channels
- Interaction with trade unions

RusHydro Group provides voluntary health insurance and non-government pension insurance plans. Employees receive support as part of existing collective bargaining agreements and internal documents.

In 2018, Chairman of the Management Board – General Director of RusHydro Nikolay Shulginov and managers of RusHydro met with representatives of territorial and regional organizations of the All-Russian Electroration in the Far Eastern Federal District.

Following the meeting, Minutes No. Sep/9 of December 11, 2018 was signed in order to further improve social partnership at all levels, enhance social dialogue between authorized representatives of employers and employees of RAO ES East, and maintain the existing level of social guarantees.

RusHydro has a corporate newsletter and runs an intranet portal.

For more information, see the HR and Social Policy section on p. 117.

6. Professional industry associations and expert community

**Stakeholders’ interests:** energy science development; development of innovative technologies; partnership prospects; transparent operations

- RusHydro’s participation in committees and working groups of a number of non-profit partnerships and international organizations, including:
  - Global Sustainable Energy Partnership;
  - International Hydropower Association;
  - International Commission on Large Dams;
  - World Energy Council.

7. Federal and local executive authorities

**Stakeholders’ interests:** ensuring reliable and uninterrupted power supply and heat supply; tax revenues; development of regions of presence; improvement of the regulatory framework for energy based on renewable energy sources

- Agreements on social and economic cooperation with regions of the Russian Federation
- Public hearings on plant construction projects
- Engagement in joint committees, commissions, and expert groups on energy sector development

In 2018, a working group was set up to address matters related to the development of hydropower generating facilities of the Republic of Dagestan and social and economic matters in the regions of the Company’s operations.

As part of cooperation with federal authorities, the management of RusHydro took part in commissions and working groups under the President and the Government of the Russian Federation on development of the energy sector and social-economic development of Russian regions, including development of proposals and updates for the Schemes and Programs to Develop Regional Energy Systems, heating layouts for Russian cities and towns, the general layout of power-generating facilities in Russia, and the territorial planning layout for the Russian power industry.

RusHydro works with committees of the Federal Assembly of the Russian Federation on matters related to the Company’s operations. RusHydro is actively involved in the preparation and holding of the round table session Development of Hydropower in Russia: Prospects and Challenges arranged by the State Duma Committee on Energy.

In promoting development of Russian regions, RusHydro and government authorities are governed by agreement on social and economic cooperation with regional and a number of municipal governments. As at December 31, 2018, agreements and memoranda were signed with government authorities of the following regions: Republic of Dagestan, Republic of Sakha (Yakutia), Republic of Tatarstan, Republic of Khakassia, Kamchatka Territory, Chukotka Autonomous Area, Volgograd Region, Magadan Region, Moscow Region, and Sverdlovsk Region.

Preparation of proposals for facilities to be included in RusHydro’s Long-term Program for Replacement of Retiring Capacities, primarily of the government program of the thermal power plants modernization with a return on invested capital of at least 14% (the cost of projects is determined based on design and cost estimate documents), with all consumers of the wholesale market paying for the cost of new projects.

Calculation of a possible option to complete the construction of Cheboksarskaya HPP at the full reservoir level of 63.0 m as per instruction by RusHydro for the Analytical Center for the Government of the Russian Federation. The calculation served as the basis for the decision of the Government of the Russian Federation (No. DK-PP-17Ppr of October 1, 2018) on maintaining the full reservoir level of Cheboksarskaya HPP at 63.0 m.

8. Regulators and infrastructure organizations

**Stakeholders’ interests:** compliance with Russian and international laws

- Reporting
- Development of proposals to improve legislation

- Disclosure of information in accordance with the requirements of the Bank of Russia and other regulators.
## Key mechanisms

### 9. Educational institutions

**Stakeholders’ interests:** targeted training programs; energy science development; development of innovative technologies, including those which reduce the environmental impact

<table>
<thead>
<tr>
<th>Cooperation in R&amp;D</th>
<th>Training, retraining, and skills improvement for employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders for R&amp;D projects</td>
<td>Providing information in a timely manner in response to events</td>
</tr>
<tr>
<td>Interviews, media scrums, press tours and other media events</td>
<td>Media coverage for RusHydro's social initiatives, such as the Energy for Education contest for university undergraduates.</td>
</tr>
</tbody>
</table>

- Launching the Institute of Hydropower and Renewable Energy Sources, part of Moscow Power Engineering Institute, in 2018 supported by RusHydro; implementation of the advanced personnel development program From School to Workplace; and participation in the organization of various events, including Energy for Education Industry contest, ProRAO,Y, a national career guidance forum, and project sessions in the Russian Children’s Education Centers (Sirius, Ocean, Simena, Orlyonok).
- Energy for Development contest for university undergraduates.
- For more information, see the HR and Social Policy section on p. 117.

### 10. Local communities and regions of presence

**Stakeholders’ interests:** local development; reliable and smooth power supply; creation of new jobs at the Group’s facilities

| Conducting public hearings on energy construction projects | RusHydro builds and commissions energy facilities that help create new jobs. In 2018, 1,253 new jobs were provided, mainly in the Far Eastern Federal District. |
| Providing good working conditions and solid remuneration | RusHydro helps develop social infrastructure in the regions where it operates. As one example, construction of the new department of the Sredneknarsk Central Hospital supported by RusHydro Group makes free medical care more available to people and creates additional jobs for healthcare professionals. |
| | Implementation of over 300 charitable projects to provide financial support to educational, medical, social, environmental, cultural, and sports institutions and organizations across the Company’s footprint. |
| | Involvement of RusHydro Group’s employees as corporate volunteers in socially important projects and events in the Company’s regions of operations. |

- For more information, see the HR and Social Policy section on p. 117.

### 11. Media

**Stakeholders’ interests:** receiving full reliable information on the Company’s operations; quick informed responses to media inquiries; timely handling of media inquiries

| Preparing and providing the media with press releases, statements, and comments of the Company | Coverage of RusHydro Group’s key projects and focus areas across its footprint. Media coverage, including arranging and holding of press tours, of the launches of Vostochnaya CHPP in Vladivostok, the third hydropower unit of List Sredneknarskaya HPP in the Magadan Region, and a wind power plant in the Arctic settlement of Tiksi, as well as projects for comprehensive modernization of RusHydro’s HPPs, construction of power facilities, and HPP operations during high water seasons and floods. |
| Publishing information on the corporate website and social media | Information support for events in the financial sector: the first offshore remenidi-denominated offering among Russian corporates and Eurobonds offerings in rubles. |
| Preparing background materials, presentations, and other information | Information support during the engineering and blasting works for clearing a landslide at the Bureyskoye water reservoir. |
| Organizing and holding briefings, press conferences, interviews, media scrums, press tours and other media events | Information coverage for RusHydro’s social initiatives, such as a project to recover the population of leopards in North Ossetia, as well as projects aimed at developing internal corporate culture and professional training: RusHydro’s spartakiads and contests among HPP and CHPP operating personnel. |
| Providing information in a timely manner in response to media inquiries | For more information, see the HR and Social Policy section on p. 117. |
In the reporting period, EBITDA increased by 5.3% year-on-year to RUB 109,673 mn.

RusHydro Group's net income in 2018 grew by 28.5% to RUB 31,837 mn. Adjusted net income in the reporting period totaled RUB 70,757 mn, up 7.6% compared to 2017.

The difference between the reported and adjusted figures mainly reflects key non-cash metrics, including:

- recognition of RUB 24,221 mn loss from impairment of fixed assets and construction in progress, mostly connected with Ust-Srednekanskaya HPP and Vostochnaya CHPP commissioned in 2018;
- recognition of RUB 13,993 mn loss on fair value of the non-deliverable forward transaction for shares due to lower RusHydro's share price in the reporting period;
- recognition of RUB 5,379 mn loss from impairment of receivables due to expected credit losses.

EBITDA, RUB mn and EBITDA margin, %

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2018–2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA, RUB mn</td>
<td>104,180</td>
<td>109,673</td>
<td>5,493</td>
</tr>
<tr>
<td>EBITDA margin, %</td>
<td>27.3</td>
<td>27.0</td>
<td>-0.3 p.p.</td>
</tr>
<tr>
<td>Net income, RUB mn</td>
<td>24,774</td>
<td>31,837</td>
<td>7,063</td>
</tr>
<tr>
<td>Net margin, %</td>
<td>6.5</td>
<td>7.8</td>
<td>1.3 p.p.</td>
</tr>
<tr>
<td>Earnings per share (EPS), RUB</td>
<td>0.0656</td>
<td>0.0739</td>
<td>0.0083</td>
</tr>
<tr>
<td>Return on assets (ROA), %</td>
<td>2.8</td>
<td>3.4</td>
<td>0.6 p.p.</td>
</tr>
<tr>
<td>Return on equity (ROE), %</td>
<td>4.5</td>
<td>5.5</td>
<td>1.0 p.p.</td>
</tr>
<tr>
<td>Adjusted net income, RUB mn</td>
<td>65,738</td>
<td>70,757</td>
<td>5,019</td>
</tr>
</tbody>
</table>

EBITDA and EBITDA margin

- recognition of RUB 24,221 mn loss from impairment of fixed assets and construction in progress, mostly connected with Ust-Srednekanskaya HPP and Vostochnaya CHPP commissioned in 2018;
- recognition of RUB 13,993 mn loss on fair value of the non-deliverable forward transaction for shares due to lower RusHydro's share price in the reporting period;
- recognition of RUB 5,379 mn loss from impairment of receivables due to expected credit losses.

Profit distribution for 2017, %

- Company development: 64, 33,116
- Dividends: 11, 226
- Reserve fund: 5, 1,407

*Net income is as per RAS.
In accordance with the Russian legislation, some companies of the Group received government grants to fund the costs for difference between the approved electricity and heat tariffs assumed in the economic feasibility study and the actual reduced tariffs applied to consumers, as well as the costs for fuel and purchased electricity and capacity.

In 2018, the Group received RUB 41,648 mn in government grants (2017: RUB 32,745 mn). The grants were provided to companies in the following regions: the Kamchatka Territory, the Republic of Sakha (Yakutia), Magadan Region, Chukotka Autonomous Area and other regions of the Russian Far East.

The total grants received by the Group’s guaranteed suppliers under Russian Government Decree No. 895 On the establishment of base rates (tariffs) for electricity (capacity) in the Far Eastern Federal District grew to RUB 26,300 mn in 2018, a 52.4% increase from the previous year due to tariff adjustment started in H2 2017.

Government grants (201-4)

Operating costs

Total operating costs of the Group incurred from day-to-day operations increased by 5.1% to RUB 3,380,864 mn with revenue up 5.1% in 2018 year-on-year. This is mainly driven by:

- a rise in fuel costs due to increased electricity and heat generation by JSC DGK’s stations, a higher price of coal and higher purchase prices of petroleum products at PJSC Kamchatskenergo in H2 2018;
- an increase in labor costs due to indexation of rates and salaries according to the effective collective bargaining agreements;
- a rise in costs for third party services as a result of growing repair and maintenance expenses, primarily at PJSC Yakutskenergo and PJSC Sahalinenergo, and costs for other third-party services at JSC LCM due to increased use of third party services in coal production;
- an increase in costs depreciation and amortization caused by an uplift in PP&E costs as a result of the launch of new facilities (namely Yakutskaya GRES-2 with off-site infrastructure commissioned in 2017 and through 2018) and refurbishment and upgrade of PP&E at Ryshydro’s branches;
- higher costs for taxes (excluding income tax) due to an increase in property tax rate for grid assets and higher costs for property tax due to the launch of Yakutskaya GRES-2 and the off-site infrastructure;
- a rise in costs for purchased electricity and capacity due to growing expenses at JSC RAO ES East Subgroup in the wake of transition to a new settlement system at PJSC Kamchatskenergo;
- a rise in costs for petroleum products purchased for resale due to an increase in volumes to be supplied to external buyers under petroleum product sales contracts;
- an increase in other expenses as a result of changes in loss from write-off or other disposal of PP&E and assets under construction.

Revenue

The Group’s total revenue in 2018 increased by 5.1% year-on-year to RUB 400,418 mn against RUB 380,864 mn in the previous reporting period. Key drivers of the change in revenue include:

- increase of RUB 13,220 mn in total revenue from electricity sales (including government grants) by RAO ES East Subgroup mostly due to higher prices and volumes;
- growth in RusHydro’s revenue of RUB 4,807 mn from electricity sales driven by higher output resulting from the increased water inflow in reservoirs of the Volga-Kama cascade in H1 2018 and in Siberian TPPs in H2 2018;
- growth in revenue from the sale of capacity by RUB 2,952 mn on the back of higher sales volume at PJSC DDEK;
- increase of RUB 1,448 mn in ESK RusHydro Subgroup revenue from the sale of electricity driven by higher net supply and average tariffs;
- increase in revenue of RUB 1,243 mn from heat and hot water sales resulting from increased heat prices and net supply;
- growth of other revenue of RUB 4,497 mn, mainly from RAO ES East Subgroup driven by higher electricity transmission and volumes of contractual petrochemical sales to third parties.

From January 1, 2018, the Group’s revenue from offset of electricity transmission losses and Group’s expenses for electricity transmission services of grid operators under relevant contract has been reported in an aggregated form. Offset of grid losses received by the Group from grid operators shall not be deemed as separate obligations under IFRS 15, the loss offset contract shall not be an agreement with the consumer in the IFRS 15 context, therefore, these offsets cannot be recognized as revenue. The grid loss offset received by the Group’s companies for the year ended December 31, 2018 amounted to RUB 8,459 mn, including RAO ES East Subgroup – RUB 3,375 mn, [023-44]
Petroleum products purchased for resale

Direct economic value generated and distributed

Operating costs, RUB bn

<table>
<thead>
<tr>
<th></th>
<th>'17</th>
<th>'18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments to government</td>
<td>23,666</td>
<td>26,098</td>
</tr>
<tr>
<td>Payments to capital providers</td>
<td>10,430</td>
<td>11,908</td>
</tr>
<tr>
<td>Salaries, allowances and other benefits</td>
<td>74,390</td>
<td>75,876</td>
</tr>
<tr>
<td>Interest income and dividends received</td>
<td>9,575</td>
<td>8,879</td>
</tr>
<tr>
<td>(Losses)/gains from sale of assets</td>
<td>(948)</td>
<td>(1,795)</td>
</tr>
<tr>
<td>Economic value generated</td>
<td>383,534</td>
<td>402,123</td>
</tr>
</tbody>
</table>

As at December 31, 2018, the Group's assets grew by 6.9% (RUB 60,228 mn) to RUB 931,931 mn year-on-year. The change is mainly driven by:

- an increase in non-current liabilities due to a larger share of funds placed on deposits with maturities of over 90 days;
- an increase in non-current assets due to an increase in long-term borrowings, while current liabilities declined by RUB 31,170 mn mainly due to a reduction in short-term borrowings and current portion of long-term borrowings.

As at December 31, 2018, the Group's liabilities changed as follows:

- net financial debt (RUB 131,131 bn) compared to RUB 345,712 mn year-on-year. The change is mainly attributable to movements in RusHydro's share prices in 2018.

In 2018, the Group's short-term debt and leverage decreased, while the long-term debt went up. At the end of 2018, RusHydro Group's total and net financial debt stood at RUB 226.5 bn and RUB 131.1 bn, respectively. Given higher consolidated operating income in 2018 and smart investing policy, net financial debt / EBITDA declined to 1.1x as at December 31, 2018 vs 1.4x as at December 31, 2017. This means sustainable improvement of the Group's financial position since 2016.

The period under review saw an increase in long-term borrowings, mainly due to the placement of three Eurobond issues in 2018 (one issue worth RUB 20 bn placed in February and two issues worth RUB 15 bn and 1.5 bn offshore Chinese renminbi placed in November). On top of that, in April 2018, RusHydro and the Far East and Baikal Region Development Fund entered into a special-purpose loan agreement worth RUB 5 bn to finance the construction of off-site facilities of Sakhalinskaya GRES-2. In July 2018, the Group also successfully raised RUB 20 bn under a loan agreement with VTB Bank. At the end of 2018, the rate of ruble-denominated borrowings averaged about 8% per annum. In December 2018, RusHydro prepaid an ECA-covered FX loan of some EUR 69 mn from UniCredit Bank Austria AG.

Debt portfolio management

Total net financial debt, RUB bn, and leverage as at the year-end

In 2018, the Group successfully raised RUB 20 bn under a loan agreement with VTB Bank. At the end of 2018, the rate of ruble-denominated borrowings averaged about 8% per annum. In December 2018, RusHydro prepaid an ECA-covered FX loan of some EUR 69 mn from UniCredit Bank Austria AG.

Assets, equity and liabilities

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In 2018, the Group was also bringing down its short-term debt. In February 2018, RusHydro repurchased its series 07 and 08 ruble bonds, under the put option for a total of about RUB 15 bn. In March, the Group repaid a loan of RUB 10.6 bn from Sberbank. July saw a successful redemption of exchange bonds worth RUB 15 bn. In February 2018, the Group terminated its contract of guarantee to meet obligations of PJSC Boguchanskaya HPP under a loan agreement with VEB worth RUB 25.9 bn as at December 31, 2017, which also helped reduce leverage.

As at December 31, 2018, the Group’s borrowings surged by more than RUB 191 bn at the end of 2018 (two denominated in rubles and 1.5 bn of offshore Chinese renminbi) account for about 98% and 91%, respectively. This means the minimum level of currency and interest risks for the Group in terms of financial debt.

More information on the main changes in the structure of long- and short-term debt (excluding forward) is available below.

### Structure of the long-term debt (to be redeemed after twelve months from the reporting date), %

- Bonds (including Eurobonds (LPN))
- 53.7%
- Loans and borrowings
- 46.9%
- Other long-term borrowings
- 0.6%

- Outstanding short-term part of long-term loans, borrowings and bonds
- 84.0%
- Short-term loans and borrowings
- 15.7%
- Other short-term borrowings
- 0.3%

In 2018, the Group’s long-term debt was driven by the issuance of long-term financial instruments, mainly due to the maturity of long-term loans and bonds (including exchange and local bonds totaling about RUB 15 bn and about RUB 18 bn, respectively). As the remaining drawdown for the Group’s current loan agreements amounted to more than RUB 191 bn at the end of 2018 and substantially exceeds the need for short-term debt refinancing, financial risks are considered as insignificant.

### Bonds

As at December 31, 2018, the outstanding bonds of RusHydro include seven issues for a total of RUB 70.0 bn (the aggregate value of outstanding bonds is RUB 28.2 bn).

#### Key parameters of RusHydro’s bond issues

<table>
<thead>
<tr>
<th>Issue parameters</th>
<th>Series 01 and 02 bonds</th>
<th>Series 07 and 08 bonds</th>
<th>Series 09 bonds</th>
<th>Series BO-PO4 exchange bonds</th>
<th>Series BO-PO5 exchange bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond type</td>
<td>Non-convertible</td>
<td>Non-convertible</td>
<td>Non-convertible</td>
<td>Non-convertible</td>
<td>Non-convertible</td>
</tr>
<tr>
<td></td>
<td>certificated</td>
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<td>certificated</td>
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</tr>
<tr>
<td></td>
<td>interest-bearing</td>
<td>interest-bearing</td>
<td>interest-bearing</td>
<td>interest-bearing</td>
<td>interest-bearing</td>
</tr>
<tr>
<td></td>
<td>bearer bonds</td>
<td>bearer bonds</td>
<td>bearer bonds</td>
<td>bearer bonds</td>
<td>bearer bonds</td>
</tr>
<tr>
<td></td>
<td>with mandatory</td>
<td>with mandatory</td>
<td>with mandatory</td>
<td>with mandatory</td>
<td>with mandatory</td>
</tr>
<tr>
<td></td>
<td>centralized custody</td>
<td>centralized custody</td>
<td>centralized custody</td>
<td>centralized custody</td>
<td>centralized custody</td>
</tr>
<tr>
<td>State registration number</td>
<td>4-01-55038-E</td>
<td>4-02-55038-E</td>
<td>4-07-55038-E</td>
<td>4-09-55038-E</td>
<td>4B02-04-55038-E</td>
</tr>
<tr>
<td>Maturity date</td>
<td>12.04.2021</td>
<td>02.02.2023</td>
<td>15.04.2025</td>
<td>04.04.2019</td>
<td>12.06.2020</td>
</tr>
<tr>
<td>Offering price</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Coupons 6–16 – 0.1% p.a.</td>
<td>Coupons 6–16 – 0.3% p.a.</td>
<td>Coupons 6–16 – 0.1% p.a.</td>
<td>Coupons 6–16 – 0.3% p.a.</td>
<td>Coupons 6–16 – 0.3% p.a.</td>
</tr>
<tr>
<td></td>
<td>7.5% p.a.</td>
<td>7.5% p.a.</td>
<td>7.5% p.a.</td>
<td>7.5% p.a.</td>
<td>7.5% p.a.</td>
</tr>
<tr>
<td></td>
<td>coupon rate to be determined by the issuer</td>
<td>coupon rate to be determined by the issuer</td>
<td>coupon rate to be determined by the issuer</td>
<td>coupon rate to be determined by the issuer</td>
<td>coupon rate to be determined by the issuer</td>
</tr>
<tr>
<td>Form of offering</td>
<td>Open subscription, bookbuilding</td>
<td>Open subscription, bookbuilding</td>
<td>Open subscription, bookbuilding</td>
<td>Open subscription, bookbuilding</td>
<td>Open subscription, bookbuilding</td>
</tr>
<tr>
<td>Yield</td>
<td>8.16%</td>
<td>8.68%</td>
<td>13.16%</td>
<td>10.62%</td>
<td>8.37%</td>
</tr>
<tr>
<td>Coupon payments</td>
<td>semi-annual</td>
<td>semi-annual</td>
<td>semi-annual</td>
<td>semi-annual</td>
<td>semi-annual</td>
</tr>
</tbody>
</table>

### Eurobonds

As at December 31, 2018, the outstanding bonds of RusHydro include four issues of Eurobonds for a total of RUB 55 bn and 1.5 bn of offshore Chinese renminbi placed by RusHydro Capital Markets DAC company on Irish Stock Exchange under Reg S rules. All issues have the confirmed long-term rating from S&P / Moody’s / Fitch / ACRA aligned with RusHydro’s credit rating.
Key parameters of Eurobond issues

<table>
<thead>
<tr>
<th>Offering date</th>
<th>Maturity date</th>
<th>Issue currency</th>
<th>Amount, bn</th>
<th>Coupon rate, %</th>
<th>Coupon payment</th>
<th>ISIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.02.2018</td>
<td>15.02.2021</td>
<td>RUB</td>
<td>20.0</td>
<td>7.4</td>
<td>Semi annual</td>
<td>XS176724755</td>
</tr>
<tr>
<td>27.01.2018</td>
<td>27.01.2022</td>
<td>RUB</td>
<td>15.0</td>
<td>8.975</td>
<td>Semi annual</td>
<td>XS1912654677</td>
</tr>
</tbody>
</table>

Credit ratings

RusHydro’s high credit quality is confirmed by S&P, Moody’s and Fitch, the three leading international rating agencies.

The Company’s strong operating performance, solid position in the domestic electricity market, coupled with healthy liquidity and leverage levels contributed to RusHydro’s improved credit standing in 2018 and early 2019. For the first time in the Company’s history, its long-term credit rating was upgraded to the investment grade to become on a par with the sovereign rating of the Russian Federation by all three rating agencies.

RusHydro’s rating is assigned under the national scale by the Analytical Credit Rating Agency (ACRA). In the reporting period, the Group enjoyed the top credit rating by ACRA.

Cash flows

In 2018, the Group’s cash flow from operating activities (after changes in working capital) increased by RUB 6,426 mn (up 8.2%) to RUB 84,551 mn. Cash spent to purchase PP&E decreased by RUB 4,270 mn, or 6.0% to RUB 67,423 mn in 2018 due to the completion of the investment cycle of the Far Eastern investment projects.

Cash flows, RUB mn

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flows from operating activities (after accounting for changes in working capital)</td>
<td>78,125</td>
<td>84,551</td>
<td>8.2</td>
</tr>
<tr>
<td>Cash for PP&amp;E acquisition</td>
<td>-71,693</td>
<td>-67,423</td>
<td>-6.0</td>
</tr>
<tr>
<td>Proceeds from sale of PP&amp;E</td>
<td>213</td>
<td>977</td>
<td>358.7</td>
</tr>
<tr>
<td>Proceeds from sale of Inter RAO shares</td>
<td>-</td>
<td>2,160</td>
<td></td>
</tr>
<tr>
<td>Proceeds from disposal of joint venture</td>
<td>-</td>
<td>871</td>
<td>-</td>
</tr>
<tr>
<td>Interest received</td>
<td>7,848</td>
<td>5,545</td>
<td>-29.3</td>
</tr>
<tr>
<td>Interest paid</td>
<td>-15,794</td>
<td>-14,217</td>
<td>-10.0</td>
</tr>
<tr>
<td>Free cash flow (FCF)</td>
<td>-1,301</td>
<td>12,464</td>
<td>-</td>
</tr>
</tbody>
</table>

Tax payments

RusHydro Group is one of the main taxpayers in the regions of its operation. In 2018, tax payments to budgets of all levels totaled RUB 81.2 bn, including RUB 34.3 bn - to regional budgets.

Tax payments to budgets of different levels, RUB mn

<table>
<thead>
<tr>
<th></th>
<th>RusHydro Subgroup</th>
<th>JSC RAO ES East Subgroup</th>
<th>RusHydro Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>17,093</td>
<td>22,026</td>
<td>29,432</td>
</tr>
<tr>
<td>including insurance contributions</td>
<td>4,302</td>
<td>4,449</td>
<td>4,994</td>
</tr>
<tr>
<td>Regional</td>
<td>21,647</td>
<td>23,578</td>
<td>23,971</td>
</tr>
<tr>
<td>Local</td>
<td>636</td>
<td>426</td>
<td>403</td>
</tr>
<tr>
<td>Total</td>
<td>39,374</td>
<td>46,028</td>
<td>53,806</td>
</tr>
</tbody>
</table>

1 In the table for 2017-2018, tax payments are allocated to the federal and regional budgets according to the budget level (income tax, water tax, mineral extraction tax, payment for the use of water bodies, pollution charge).
PRODUCTION AND SALES

Key production assets

Electricity and heat production is the key business of RusHydro Group. The Group’s asset structure includes over 90 renewable energy facilities, both in Russia and abroad, along with some thermal power plants and electrical grid assets in the Far East. As at January 1, 2019, the installed capacity of RusHydro power plants, including Boguchanskaya HPP; totaled 39,370 MW, up 331 MW year-on-year. The installed heat capacity increased to 18,926 Gcal/h, up 426.9 Gcal/h.

The growth in the installed capacity of the Group’s facilities was driven also by the commissioning of Vostochnaya CHPP (33.5 MW, 432.6 Gcal/h) in Vladivostok and hydroelectric unit No. 3 at Ust-Srednekanskaya HPP (142.5 MW) as well as the implementation of the Comprehensive Modernization Program at Saratovskaya HPP (+12 MW), Nizhnegorodskaya HPP (+3 MW), Novosibirskaya HPP (up to 15 MW) and Rybinskaya HPP (+10 MW).

The installed capacity structure shows the prevalence of large HPPs generating 28,966 MW1, or 74% of the total installed capacity, while 8,598 MW, or 22% of the installed capacity, is generated by the TPPs of RAO ES East Subgroup. The Group’s assets also include 1,200 MW Zaporizhzhya PSPP, 300 MW Zelenchuckskaya HPP-PSSP and 16 MW Kubanskaya PSPP. The Group’s renewable energy facilities, including SHPP (up to 30 MW), GeoPP, WPP and SPP, account for a total installed capacity of 290 MW.

RAO ES East electrical grids

The businesses of PJSC RAO ES East ensure power transmission and distribution both in UES of the East and in isolated energy systems.

In UES East, the power from higher voltage grids in 220 kV UNEG is transmitted to the consumers by JSC DRSK, while in isolated electrical grids – by AO-energy. At the end of 2018, the total length of 35–220 kV transmission grids was 34,966 km.

The distribution grid transmits power from a 35–220 kV grid to low and medium (MV-2) voltage consumers. At the end of 2018, the total length of low voltage overhead and cable power lines made up 69,781 km, up 526 km year-on-year.

At the end of the reporting period, the total number of transformer substations increased to 22,000, up 336, with their total capacity hitting 29,317.3 MVA, up 540 MVA. For the low-voltage category, changes in the length of transmission power lines and in the number and capacity of transformer substations are primarily associated with the housing construction in large cities of the Far East, recognition of abandoned rural grids and grid reconstruction.

The number of utility connection contracts executed during the year rose by 1% (to 22,000). The Group made it technologically possible to connect consumers (including in ASEZs) to the maximum capacity of 884.3 MW.

In 2018, total electricity fed to the grids of JSC RAO ES East Subgroup stood at 35,427.2 mn kWh, up 1,139.3 mn kWh year-on-year. The grid losses amounted to 9.6%.

Length of transmission and distribution power lines by regulatory regime, km (2018)

<table>
<thead>
<tr>
<th>Grid class</th>
<th>2017</th>
<th>2018</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>WECM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110 kV</td>
<td>7,940</td>
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<td>35 kV</td>
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<td>-30</td>
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Length of transmission power lines1

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<th>2018</th>
<th>Change</th>
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<td>WECM</td>
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<tr>
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<tr>
<td>Total length of power lines</td>
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<tr>
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Length of distribution power lines1

<table>
<thead>
<tr>
<th>Grid class</th>
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<th>2018</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Overhead power lines</td>
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<td>20,652</td>
<td>82</td>
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<tr>
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</tr>
<tr>
<td>Cable power lines</td>
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</tr>
<tr>
<td>0.4 kV</td>
<td>1,120</td>
<td>1,120</td>
<td>0</td>
</tr>
<tr>
<td>Total length of power lines</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>WECM</td>
<td>104,214</td>
<td>104,747</td>
<td>533</td>
</tr>
</tbody>
</table>

1 Including PJSC Boguchanskaya HPP (a joint venture of PJSC RusHydro and RUSAL) and HPP-2 of PJSC KamGEK, and including HPP-1 and HPP-3 of PJSC KamGEK, assets held in trust.

1 Large HPPs are those with the capacity of over 30 MW that do not fall into the category of small HPPs.

1 Measured by chain.

Measured by chain.
Electricity generation made up 13.2% and 1.6%, respectively. The Group’s generation and consumption by 1.7% to the System Operator of the Unified Energy System, last year saw Boguchanskaya HPP, added to the Group’s electricity generation.

2018 saw a new record for Operating performance

Electricity generation, bn kWh

<table>
<thead>
<tr>
<th>Year</th>
<th>Russian Hydro Subgroup</th>
<th>RAO ES East Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>138.8</td>
<td>140.3</td>
</tr>
<tr>
<td>2017</td>
<td>140.3</td>
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</tr>
<tr>
<td>2018</td>
<td>144.3</td>
<td>144.3</td>
</tr>
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</table>

Generation structure by regulatory regime, GWh (m3)

In 2018, the electricity generation at the Group’s HPPs, PSPPs, and geothermal power plants increased by 2% year-on-year, reaching 1019.8 bn kWh. During the same period, the electricity generation at the Sevan-Hrazdan Cascade HPPs in Armenia fell by 15.3%, accounting for 412 mn kWh.

The Group’s thermal power plants in the Far East demonstrated a positive trend with their generation of 31.7 bn kWh, up 5.9% year-on-year. The Group’s wind, solar and geothermal power plants generated 431 mn kWh, while the heat supply stood at 29.9 mn Gcal.

In 2018, the main factors affecting the Group’s electricity generation and heat supply included:
- water inflow to most Volga and Kama reservoirs at a level higher than the long-term annual average; water inflow to HPPs in Siberia at the same or slightly higher level than the long-term annual average; water inflow to HPPs in the South of Russia at a level equal to the long-term annual average;
- growing electricity generation at TPPs in the Far East, up 5.0% (to 34,464 mn kWh) due to the year-on-year drop in electricity generation at HPPs in UES of the East and a 3.7% increase in electricity consumption in the Far East;
- heat output of 29,650 mn Gcal, down 0.9% year-on-year, by the Group’s power plants and boiler houses in the Far Eastern Federal District due to higher actual outdoor temperatures across the Far East but for the Kamchatka Territory.

Measures for simplifying utility connection to electrical grids (m3)

In 2018, the Group’s businesses were involved in implementing the Target Model for Utility Connection to Electrical Grids approved by the Russian Government’s Decree No. 147-r On target models for simplifying business procedures and enhancing investment appeal of the Russian regions dated January 31, 2017 (the "Program").

The project seeks to simplify the procedure for utility connection (the "UC") for legal entities or sole proprietors requesting the power of up to 150 kW with reliability category 2 and 3 (shorter timing, enabling interaction with the grid company via a personal account without a need to visit the client office). The Group’s participants in the Program comprise JSC DRSK, PJSC Kamchatksenergo, PJSC Sakhalinenergo, PJSC Magadanenergo, JSC Chukotenergo and PJSC Yakutskenergo.

The Program made it possible to introduce an online service to the energy companies’ websites featuring personal accounts for the applicant to interact with the grid company and to make preliminary calculations of the UC cost (UC tariff calculator), apply for a UC, receive a UC contract and sign the necessary UC documents, including their electronic versions.

The applications filed by the applicant through the Personal Account differ in their share, with, for example, 1% at JSC Chukotenergo, 17% at JSC DRSK and 44% at PJSC Sakhalinenergo.
Sales of electricity and heat

RusHydro Group’s steady development depends on stable electricity and capacity sales in the wholesale market and the growing retail business providing for smooth and efficient power supply to consumers, which remains one of its priorities.

The Group sells electricity in Russia both in the wholesale electricity and capacity market (first and second price zones of the wholesale market and UES East’s non-price zone) to major consumers and to retail consumers via its retail companies and guaranteed suppliers.

**WECM performance**

The wholesale electricity and capacity market (WECM) participants include generating companies, electric power exporters/importers, electricity retailers, electric grid companies (electricity purchases to cover transmission losses), and large consumers. The wholesale electricity and capacity market covers both price and non-price zones. The first price zone comprises the European part of Russia and Urals, while the second price zone encompasses Siberia. Special wholesale trading rules apply to the non-price zones that include the Arkhangelsk and Kaliningrad Regions, Komi Republic, and regions in the Far East, including the Western and Central Energy Districts of the Republic of Sakha (Yakutia).

Under the Russian law, all electricity and capacity facilities with an installed capacity of over 25 MW located in the price and non-price zones are required to sell their products in the WECM only. Power plants with a capacity below 5 MW are required to trade in the retail electricity market (REM) only, while power plants with a capacity between 5 MW and 25 MW can trade in both WECM and REM.

The WECM has several sectors that offer different transaction terms and delivery times:
- regulated contracts (RC) cover electricity and capacity volumes supplied to households and equivalent consumer categories under regulated prices (tariffs) approved by Russia’s Federal Antimonopoly Service. Total electricity and capacity supplies under regulated contracts may not exceed 35% of electricity and capacity output;
- the day-ahead market (DAM) is a place where power generated in excess of the RC volumes is traded at market prices. Prices are determined through a competitive bidding process one day ahead of the delivery, with bids accepted from both the producers and consumers. The DAM market uses the marginal pricing mechanism, which balances supply and demand and applies to all market participants;
- the balancing market (BM) is a real-time vehicle used to balance discrepancies between the power volumes actually produced/consumed and those originally planned. Discrepancies between the planned and actual consumption occur as a result of internal and external initiatives. Internal initiatives come from the market participants (consumers or suppliers), while external initiatives are reserved to the System Operator. The discrepancies are priced in such a way as to encourage market participants to adhere to the planned electricity consumption and production volumes as determined in the DAM and to follow the System Operator’s instructions;
- capacity auctions (KOM) enable capacity trading at market (unregulated) prices determined through a competitive bidding process. Close to 50% of the capacity in the first price zone and the overwhelming majority of capacity volumes in the second price zone of the wholesale market are sold through capacity auctions;
- capacity supply agreements (DPM) target power generating facilities included in the designated list approved by the Russian Government’s Decree No 1334-r dated August 11, 2010. Similar capacity sale agreements exist with respect to newly built NPPs (PSPPs) and HPPs (capacity sale agreements for new NPPs/HPPs). Capacity supply agreements and capacity sale agreements for new NPPs/HPPs ensure fulfillment of supplier obligations under approved investment programs, while also providing payment guarantees for the capacities of newly built (upgraded) generating facilities. A thermal power plant built under a capacity supply agreement is provided with capacity payment guarantees effective for a period of 10 years (20 years under capacity sale agreements for new NPPs/HPPs), which ensures recovery of the capital and maintenance expenditures and the target level of return. The capacity price under capacity supply agreements and capacity sale agreements for new NPPs/HPPs is paid by all consumers of the relevant price zone. The main restraining factor for prices under capacity sale agreements for new NPPs/HPPs is the decrease in the average yield of long-term Russian Government bonds used to calculate the capacity price for suppliers from 10.04% in 2017 to 8.393% in 2018; capacity sale contracts for must-run generating facilities are signed by suppliers with respect to generating facilities designated by the Russian Government (based on proposals from the Government Commission on the Development of the Electric Power Industry) or generating facilities ordered by an authorized body to suspend decommissioning in accordance with the rules for decommissioning of electric power facilities and their shutting down for repairs. The capacity of must-run facilities generating electricity to avoid power shortages is paid for by consumers of the relevant free transfer zone. The capacity of must-run facilities generating power to avoid heating shortages is paid for by consumers of the relevant Russian region; unregulated bilateral contracts, as well as unregulated electricity and/or capacity sales contracts (FBC, FECC, FCC) allow the WECM participants to sign electricity and/or capacity sales contracts at unregulated prices.
The Russian energy system is served by dedicated technological and commercial infrastructure operators. Non-Profit Partnership Council for Organizing Efficient System of Trading at Wholesale and Retail Electricity and Capacity Markets (Market Council Non-Profit Partnership established under Federal Law No. 35-FZ On Power Industry dated March 26, 2003) is responsible for running the wholesale market’s commercial infrastructure.

Trading System Administrator of the Wholesale Electricity and Capacity Market (JSC TASA) is responsible for administering electricity transactions in the wholesale market (the trading system of the wholesale market).

Financial settlements between the WECM participants are handled through the Center for Financial Settlements (CFS).

The WECM technological infrastructure is administrated by the System Operator of the Unified Energy System which exercises exclusive and centralized operational management of Russia’s Unified Energy System and monitors compliance with the system’s technological parameters. The System Operator supports the wholesale electricity and capacity market by updating the calculation model, based on which the Commercial Operator determines the WECM power volumes and prices. In addition, it decides on the structure of operating generating facilities, administers capacity auctions, and provides support to the balancing market.

The market’s technological infrastructure is also supported by the Federal Grid Company (FGC UES) which manages the unified national electric grid (UNEIG), and interregional distribution grid companies (IDGC).

The activities of infrastructure operators, including their pricing policies and counterparty relations, are subject to government regulation and control.

**Regulatory framework for tariff-related decision making**

Federal Law No. 35-FZ On Electric Power Industry dated March 26, 2003 outlines the basic principles and methods of state regulation in the electric power industry and the regulators’ scope of authority.


The procedure and timing for financial settlements and approval of electricity and capacity tariffs are set out in the Russian Government’s Resolution No. 1178 On Pricing in the Field of Regulated Prices (Tariffs) for Electric Power dated December 29, 2011.

**Tariff setting for generating facilities across WECM price zones:**

Tariffs for the generating facilities operating within the WECM are set by Russia’s Federal Antimonopoly Service (FAS) in line with the methodology developed by the Federal Tariff Service (FTS) abolished in 2015 to be succeeded by FAS.

The primary tariff calculation methodology for the WECM generating facilities (including those located in the non-price zone) is the one based on indexation. It was approved by FTS Order No. 210-e/1 On Approval of Indexation Formulas for Regulated Prices (Tariffs) of Electricity (Capacity) Used in Electricity (Capacity) Sale Contracts, Procedure for their Application, and the Procedure for Calculating Planned and Actual Indicators for the Purposes of Such Formulas dated August 28, 2014. The base tariff calculated in 2007 is annually adjusted to factor in the index of changes in semi-fixed costs as determined by the Russian Ministry of Economic Development. The 4% deflator index in the 2018 tariff was in line with the PPI (excluding the energy sector’s contribution).

This methodology is also used for new generating facilities starting from the second year of their operation. With respect to the facilities operating under supply and sale agreements, the methodology applies to electricity generation only.

During the first year in the wholesale market, the tariff for generating facilities located in non-price zones is set based on economically justified expenses approved by FTS Decree No. 199-e/6 On Approval of Guidelines for Calculation of Regulated Wholesale Electricity and Capacity Tariffs (Prices) under Sale Contracts dated September 15, 2006. This methodology determines the economically justified amount of financial resources a company needs to operate at regulated tariffs within a specific regulation period (the return on investments, which is accrued through amortization, is not taken into consideration).

For facilities operating under sale agreements for new NPPs/HPPs, the capacity price is calculated by FAS in line with the methodology approved by FTS Decree No. 486-e On Approval of Capacity Pricing Procedure for Newly Built Nuclear and Hydroelectric Power Plants (including Pumped Storage Power Plants) dated October 13, 2010.

**Sendout of electricity and capacity by RusHydro (branches)**

<table>
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<tr>
<th>Item</th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output, mn kWh</td>
<td>91,166</td>
<td>92,927</td>
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</tr>
<tr>
<td>Sendout (excluding electricity purchases), mn kWh</td>
<td>89,887</td>
<td>91,684</td>
<td>2.0</td>
</tr>
<tr>
<td>Electricity purchased, mn kWh</td>
<td>9,192</td>
<td>10,116</td>
<td>10.1</td>
</tr>
<tr>
<td>Total sales, mn kWh</td>
<td>96,350</td>
<td>99,093</td>
<td>2.8</td>
</tr>
<tr>
<td>Capacity, MW</td>
<td>21,645</td>
<td>21,423</td>
<td>-1.0</td>
</tr>
</tbody>
</table>

The Group increased actual output and sendout of electricity by 2.0% y-o-y, mainly due to higher power generation by HPPs in Siberia and in the Far East thus boosting sales volumes, including in the day-ahead market (DAM). In 2018, RusHydro’s average DAM price was RUB 1,285 per MWh (+6.0%) for the European part of Russia and RUB 825 per MWh (-3.6%) for Siberia.

**Key WECM tariff drivers:**

- tariff indexation, with the 2018 deflator index standing at 4% (in line with the PPI, excluding the energy sector’s contribution);
- increase of tax rates for facilities using water bodies for the purposes of hydropower generation without water withdrawal (as required by Russia’s Tax Code, a coefficient of 1.75 was applied to the tax rates in 2018).

Major regulatory changes included amendments to the Russian Government’s Resolution No. 876 dated December 30, 2006 which, among other things, raised the fees paid for using water bodies or parts thereof for the purpose of electric power generation with no water withdrawal operations by approximately 10%. These amendments have been in effect since 2018.

**Electricity sales in the first and second price zones**

RusHydro directly sells electricity in the WECM’s first and second price zones.

Electricity sales are governed by the Company’s local internal documents:

- Regulations for Information Exchange in the Economic Dispatching Business Process;
to collect and transfer the surcharge amount to the Far East in order to bring the region’s tariffs in line with the Russian base rate. RushHydro’s electricity and capacity sales rose mainly due to the rising power generation and a higher base of funds used for calculating the capacity price surcharge.

Sales of electricity and heat in retail markets

Companies operating within the designated price zones of the retail electricity market are guided by the retail market pricing rules based on the WECM tariffs, while also taking into account approved tariffs for services subject to government regulation.

Electricity sold in the retail market is either purchased in the WECM or sourced from generating companies that do not operate in the wholesale market. In the Russian regions included in non-price zones of the wholesale market, the retail electricity price for end consumers is set based on the wholesale market prices. Prices aligned with the wholesale market apply to all end consumers, with the exception of households and equivalent consumer categories.

Households and equivalent consumer categories are supplied with power at regulated prices (tariffs) approved by the regional executive authorities in charge of tariff regulation.

On November 16, 2018, FAS published Order No. 1413/18 of October 12, 2018 introducing amendments to the Guidelines for Calculation of Electricity (Capacity) Tariffs for Households and Equivalent Consumer Categories. These amendments updated the formulas for calculating the electricity (capacity) tariff for households within the social consumption limit differentiated by the time of use during the day (two and three-rate tariffs). In addition, they adjusted the formulas for calculating the electricity (capacity) tariff for households in excess of the social consumption limit and formulas for calculating tariffs for the transmission of electric power supplied to households within and in excess of the social consumption limit. Finally, the maximum value of coefficient reflecting alignment of multiple rate tariffs for households with the single-rate electricity (capacity) tariff was raised to 4.0.

The sales in the first and second price zones are consolidated within JSC ESC RusHydro Subgroup (JSC ESC RusHydro, PJSC Krasnoyarskenergosbyt, PJSC Ryazanenergosbyt, JSC Chuvashskaya Electricity Sales Company) whose core business is to supply electricity both directly and via its retail subsidiaries acting as guaranteed suppliers in three Russian regions. In 2018, ESC RusHydro Subgroup supplied electricity to 1,843,222 consumers in the retail market, including 1,786,334 households on direct contracts. Total sendout of electricity amounted to 20,272.5 mln kWh in 2018.

The number of consumers (households and corporates) in service in the first and second price zones (as of)

<table>
<thead>
<tr>
<th>Consumer Category</th>
<th>Active contracts for electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing industry</td>
<td>3,781</td>
</tr>
<tr>
<td>Transport and communications</td>
<td>1,155</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2,282</td>
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<tr>
<td>State-financed</td>
<td>5,628</td>
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<tr>
<td>Management companies, condominiums, housing associations, etc.</td>
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</tr>
<tr>
<td>Resource providers</td>
<td>75</td>
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<tr>
<td>Housing and utilities</td>
<td>908</td>
</tr>
<tr>
<td>Heat suppliers</td>
<td>89</td>
</tr>
<tr>
<td>Other</td>
<td>41,146</td>
</tr>
<tr>
<td>Households on direct contracts</td>
<td>1,786,334</td>
</tr>
<tr>
<td>Total accounts</td>
<td>1,843,222</td>
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</tbody>
</table>

RushHydro’s electricity and capacity sales prices

<table>
<thead>
<tr>
<th>Year</th>
<th>DAM price, RUB/MWh</th>
<th>1PZ DAM price, RUB/MWh</th>
<th>2PZ DAM price, RUB/MWh</th>
<th>KOM price, RUB/MWh per month</th>
<th>1PZ KOM price, RUB/MWh per month</th>
<th>2PZ KOM price, RUB/MWh per month</th>
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<tbody>
<tr>
<td>2014</td>
<td>1,074.9</td>
<td>1,054.2</td>
<td>1,084.0</td>
<td>116,190.6</td>
<td>140,566.7</td>
<td>48,492.8</td>
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<tr>
<td>2015</td>
<td>1,054.2</td>
<td>1,034.2</td>
<td>1,054.0</td>
<td>117,564.1</td>
<td>140,524.0</td>
<td>48,442.2</td>
</tr>
<tr>
<td>2016</td>
<td>1,034.0</td>
<td>1,014.0</td>
<td>1,034.0</td>
<td>119,780.8</td>
<td>140,502.7</td>
<td>48,392.2</td>
</tr>
<tr>
<td>2017</td>
<td>1,014.0</td>
<td>1,004.0</td>
<td>1,014.0</td>
<td>120,822.5</td>
<td>140,482.4</td>
<td>48,342.2</td>
</tr>
<tr>
<td>2018</td>
<td>1,004.0</td>
<td>994.0</td>
<td>1,004.0</td>
<td>122,822.5</td>
<td>140,452.7</td>
<td>48,292.2</td>
</tr>
</tbody>
</table>

The DAM price in the first price zone grew on the back of lower price-taking supply of HPP electricity in the first price zone in H2 2018 and the rising supply of expensive TPP electricity.

The KOM price growth was driven by the capacity price surcharge effective from January 2018 (vs 2017 when the surcharge was introduced effective from July 2017) as the Russian Government designated Rush Hydro
The number of consumers (households and corporates) in service in the Far Eastern Federal District (RAO ES East Subgroup)3 from January 1, 2018 to December 31, 2018 (Ча)

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Active contracts</th>
<th>Electricity</th>
<th>Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing industry</td>
<td>3,169</td>
<td>436</td>
<td></td>
</tr>
<tr>
<td>Transport and communications</td>
<td>2,137</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>1,655</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>State-financed</td>
<td>11,179</td>
<td>3,508</td>
<td></td>
</tr>
<tr>
<td>Management companies, condominiums, housing associations, etc.</td>
<td>12,154</td>
<td>2,497</td>
<td></td>
</tr>
<tr>
<td>Resource providers</td>
<td>24</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>957</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Heat suppliers</td>
<td>-</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>55,780</td>
<td>13,995</td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>2,478,200</td>
<td>884,182</td>
<td></td>
</tr>
<tr>
<td><strong>Total accounts</strong></td>
<td><strong>2,565,255</strong></td>
<td><strong>884,542</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Results of activities aimed at reducing consumer debt**

Debt recovery is one of RusHydro Group’s key focus areas for reducing receivables. As at December 31, 2018, RusHydro Group’s receivables from buyers and consumers grew by 6% to RUB 65,147 mn.

As at December 31, 2018, payments received by RusHydro for electricity supplies to WECM stood at 99.1%. In the same period, payments received for electricity supplies to retail markets of the European part of Russia and Siberia stood at 100.2% at PJSC Krasnoyarskenergosbyt (RUB 18,412 mn, incl. VAT), 98.3% at JSC Chuvashskaya Electricity Sales Company (RUB 13,143 mn, incl. VAT), 99.3% at PJSC Ryazanenergosbyt (RUB 12,034 mn, incl. VAT), and 99.4% at JSC ESC RusHydro (RUB 5,963 mn, incl. VAT).

At JSC RAO ES East Subgroup, as at December 31, 2018, total payments received for electricity and heat in the retail market totaled 97.2%, with receivables of RUB 33,869 mn (incl. VAT). The company received 97.6% of payments for electricity and 96.4% for heat in the retail market. The receivables for electricity and heat amounted to RUB 15,348 mn (incl. VAT) and RUB 18,721 mn (incl. VAT), respectively.

RusHydro Group companies use the following three approaches to improve debt recovery:

- interacting with consumers and executive authorities and introducing outreach measures aimed at improving payment discipline;
- recovering debt through court;
- disconnecting the electricity supply for non-payment.

**Improvement of payment discipline through outreach measures**

Drawing attention to systemic non-payment of energy bills is an effective way to improve payment discipline among households, businesses and public sector.

The prompt payment culture is created through measures encouraging regular and timely payment. Given that utility service providers are among the biggest debtors, these initiatives seek to incentivize those management companies, condominiums and housing associations that fulfill their payment obligations promptly.

Other actions include regular posting of ‘black lists’ of persistent non-payers featuring organizations with the worst payment discipline and the highest debt levels.

Encouraging early payment has also been proven effective in addressing the debt issue. In 2018, Far Eastern Energy Company and DKG ran a joint campaign ‘New Year Without Debts’ writing off penalities accrued in unpaid electricity and heat bills (unless claimed through court) for the debtors from the Primorye and Khabarovsk Territories, Amur Region and Jewish Autonomous Region who had paid their electricity and heat arrears before December 20, 2018.

**Debt recovery through court**

As part of its efforts to reduce receivables, RusHydro Group works to enforce debt recovery through court action:

- In 2018, ESC RusHydro Subgroup filed 40,876 claims to recover debt on electricity bills for a total of RUB 4,514 mn, of which 4,598 claims against legal entities, including 94 claims of RUB 918 mn against grid companies purchasing electricity to offset grid losses, 643 claims of RUB 424 mn against state-funded organizations, and 36,184 claims of RUB 249 mn against individuals.
  Courts of different instances satisfied 50,204 claims for RUB 2,945 mn, and issued 31,759 writs of execution for over RUB 2,394 mn. The measures that bailiffs may use for non-payment include direct debiting, freezing injunction, travel restriction, and restriction on disposal (sale, transfer by gift, etc) of cars and real estate.
- In 2018, RAO ES East Subgroup filed 197,021,000 claims to recover debt on electricity and heat bills for a total of RUB 12,344 mn, including 7,191 claims of RUB 9,336 mn against legal entities, of which 1,089 claims against state-funded organizations, and 189,830 claims of RUB 2,808.3 mn against individuals.
  Courts of different instances satisfied 186,139 claims for RUB 9,364 mn.
**Disconnection for non-payment**

Disconnection for non-payment is an effective measure, but a last resort in ensuring debt recovery. The supply is disconnected upon notice made in accordance with the applicable legislation and delivered by hand, on signature of a delivery receipt, by registered post, via text message or by phone. The notice is sent 10 days before the actual disconnection. After disconnection, the electricity supply may not be resumed until the debt has been paid in full (or a debt restructuring agreement has been signed), including the penalties and recognition fees.

ESC RusHydro Subgroup: in 2018, RUB 14,963 mn of debt was repaid by 300,000 consumers after receiving notices, RUB 466 mn by 22,522 consumers after disconnection, including RUB 73 mn by households. Total number of consumers disconnected in 2018 amounted to 66,577, including 64,093 consumers from the Households group.

RAO ES East Subgroup: total number of disconnections for non-payment in 2018 amounted to 244,775, including 239,550 disconnections in the Households group.

**Electricity markets in the Far Eastern Federal District**

Tariffs in the non-price and isolated zones of the Far Eastern Federal District are set by the federal executive authorities (FTS until July 21, 2015, and FAS after July 21, 2015) and the regional executive authorities in charge of tariff regulation (regional regulators). There are no unregulated tariff zones in the Far Eastern Federal District.

In the non-price zone of the WECM, a single purchaser model has been put in place, with suppliers selling electricity and capacity to a single purchaser at set rates. Wholesale customers buy electricity and capacity from the single purchaser at prices calculated by the Trading System Administrator), based on indicative buyer prices set by FAS.

In accordance with paragraph 170 of the Russian Government’s Resolution No. 1172 of December 27, 2010, Far Eastern Energy Company (DEK) has been designated as the single purchaser in the Far East. Accounting for over 50% of retail electricity supplies in the Far East, DEK is an electricity retailer created through restructuring of regional energy and electrification companies. The company is the guaranteed supplier in the Amur Region, Jewish Autonomous Region, and Khabarovsk and Primorye Territories. DEK’s share in the total retail UES of the East electricity consumption stands at over 85%.

In some areas of the Far East, including the isolated energy systems of the Kamchatka Territory, Magadan Region, Chukotka Autonomous Area, Western and Central districts of the Republic of Sakha (Yakutia) and Sakhalin Region, retail market is the only available option as these areas are not linked to the Unified Energy System of Russia. According to the Russian Government’s Resolution No. 1464 On Connecting the Western and Central Energy Districts of the Republic of Sakha (Yakutia) to the Unified Energy System of Russia, and on Amending and Classifying as Invalid Certain Acts of the Government of the Russian Federation dated December 8, 2018 and published on December 10, 2018, the Western and Central Energy Districts of the Republic of Sakha (Yakutia) are included in the non-price zone of the Far Eastern WECM effective from January 1, 2019.

Electricity tariffs and supply in the Far Eastern Federal District

Federal Law No. 35-FZ On Electric Power Industry dated March 26, 2003 outlines the basic principles and methods of state regulation in the electric power industry and the regulators’ scope of authority. The basic principles and methods of price (tariff) regulation in the electric power industry and the procedure for setting tariffs are set out in the Russian Government’s Resolution No. 1178 On Pricing in the Field of Regulated Prices (Tariffs) for Electric Power dated December 29, 2011.

For the purpose of tariff determination, regulators used the following regulation methods:

- tariffs for DGK electricity (capacity) supplies in the WECM non-price zones (as approved by FAS Order No. 1756/16 of December 8, 2016) were calculated using the indexation methodology;
- DRSK electricity transmission tariffs for services provided by Amur and Khabarovsk Power Systems were determined based on the regulatory asset base method (RAB), while tariffs for services provided by Primorye Power System, Electric Networks of the Jewish Autonomous Region and South-Yakutsk Power System were set using long-term indexation of required gross revenue;
- sales surcharge for PSSC DEK was determined using the comparative method;
- electricity tariffs for end consumers in isolated zones were determined using the method of economically justified expenses.

Since July 1, 2016, in the WECM non-price zone numerical tariff values are no longer set for other consumers. In accordance with the estimated tariff values determined based on indicative prices, the uniform transmission tariff and the sales surcharge approved by the regulator, the tariff increase in the WECM non-price zone ranged from 0.35 to 23.64%.

In 2018, the overall increase in average electricity tariffs for consumers in the isolated zone of the Far Eastern Federal District amounted to 14.44% y-o-y. The smallest increase was registered by JSC UESK (6.1%), while the largest one (88.1%) was delivered by JSC Chukotenergo (owing to inclusion of additional costs to the required gross revenue to offset the cost of electricity purchased from Bilibino NPP in 2017).

The average annual increase in wholesale energy price of DGK in 2018 amounted to 0.97% y-o-y, with the electricity rates declining by 0.5% and capacity rates growing by 4.1%.

The weighted average energy rate for all of the DGK plants was: RUB 1,321.33 per MW/h in H1 2018 and RUB 1,327.98 per MW/h in H2 2018 (an increase of 0.5% over H1 2018).

Key factors behind changes in the DGK electricity tariff rates in H2 2018 compared to the rates approved for H2 2017 included lower per unit fuel consumption at production facilities, 2018 gas prices under the Consortium-1 project, and application of growth indices for coal and fuel oil in 2018 with downward adjustment based on the actual 2016 indices.

The average DGK capacity tariff rate was:

- RUB 261.332 / MW per month in H1 2018;
- RUB 272.172 / MW per month in H2 2018 (an increase of 3.7% over H1 2018).

For the branches of JSC DRSK (Primorye Power System, Amur Power System, Khabarovsk Power System, and Electric Networks of the Jewish Autonomous Region (ES EAO)), 2018 marked the beginning of the second long-term regulation period. During this period (2018-2022), electricity transmission tariffs for Amur and Khabarovsk Power Systems will be regulated using the ROCID method, while tariffs for Primorye Power System and Electric Networks of the Jewish Autonomous Region will be set using long-term indexation of required gross revenue.

For South-Yakutsk Power System, 2018 was the last year of the long-term regulation period, with tariffs for 2014-2018 set using the long-term indexation method.

In 2018, the average power transmission tariff growth within the footprint of DRSK was 1.14% y-o-y, with sendout and required growth revenue increasing by 2.28% and 3.44%, respectively.

For the purposes of transition to the next long-term regulation period (effective for all branches except for South-Yakutsk Power System), the base level of controllable expenses was determined using the comparative method, with the company-wide controllable cost growing by 19.0%. The opex efficiency ratio was approved at 2% for the entire duration of the long-term regulation period.

The company-wide per unit opex accounted for in the 2018 tariffs rose by 15.38% compared with 2017.
IN 2018 THE TARIFF ADJUSTMENT MECHANISM WAS IMPLEMENTED IN FIVE REGIONS OF THE FAR EASTERN FEDERAL DISTRICT

Average electricity tariffs in the Far Eastern Federal District, RUB/MWh

<table>
<thead>
<tr>
<th>Region</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yakutskenergo</td>
<td>2.1</td>
<td>2.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Kamchatskenergo</td>
<td>2.6</td>
<td>2.6</td>
<td>2.2</td>
</tr>
<tr>
<td>Magadanenergo</td>
<td>2.8</td>
<td>3.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Sakhalinenergo</td>
<td>3.1</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Chukotka Autonomous Area</td>
<td>5.8</td>
<td>5.3</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Alignment of tariffs in the Far Eastern Federal District with national averages: impact on the regions and RusHydro (2018)


As part of the effort to bring electricity (capacity) prices (tariffs) for the Far Eastern consumers other than households to the base rate, the Government issued Decree No. 2527 dated November 15, 2018 to set the base electricity (capacity) price (tariff) for 2018 at RUB 4.3 per kWh. Currently, the effective average tariff for industrial consumers in the above areas ranges from RUB 4.58 to RUB 32.3 per kWh.

As part of the effort to align prices in the Far East with the Russian base rate, the surcharge amount for 2018 was approved by the Russian Government at RUB 35,032.3 mn.

In 2018, the Group was actively involved in the work on the Russian Government’s draft resolution aimed at changing the tariff system. The new system provides for a switch to long-term tariff regulation for existing power generation facilities to reflect the actual fuel costs incurred by energy companies.

Electricity sales in the Far East’s non-price zone

In 2018, PJSC DEK acting as the single purchaser in the non-price zone of the Far East’s wholesale electricity (capacity) market purchased 30,998 mn kWh. Its commercial purchases of electricity and capacity in the WECM for PJSC DEK amounted to RUB 51,646 mn in 2018.

Electricity sales stood at 11,157 mn kWh in the WECM (besides, the company sells electricity in the retail market). DEK’s commercial sales of electricity and capacity in the WECM amounted to RUB 20,198 mn in 2018.

In 2018, the alignment mechanism was used in five out of nine regions of the Far Eastern Federal District. In all of those regions, before introducing this mechanism, the average electricity tariff for consumers was higher than RUB 4.3 per kWh. Tariff reduction does not result in lower revenue, as it is fully offset by government subsidies paid from the budget funds generated by surcharge to the capacity auction rate. Total subsidies received by guaranteed suppliers from RusHydro Group as compensation for the shortfall in income following tariff alignment amounted to RUB 26,480.6 mn in 2018.

The amount of the surcharge with a breakdown by regions of the Far Eastern Federal District, RUB bn

<table>
<thead>
<tr>
<th>Region</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yakutskenergo</td>
<td>2.1</td>
<td>2.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Kamchatskenergo</td>
<td>2.6</td>
<td>2.6</td>
<td>2.2</td>
</tr>
<tr>
<td>Magadanenergo</td>
<td>2.8</td>
<td>3.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Sakhalinenergo</td>
<td>3.1</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Chukotka Autonomous Area</td>
<td>5.8</td>
<td>5.3</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Long-term regulation takes into account, among other things:
- base operating costs;
- opex efficiency ratio (X factor);
- energy saving and energy efficiency indicators.

This project is currently assessed for its regulatory impact and is awaiting the conclusion of the Russian Ministry of Justice.
As new consumers were tapping into the wholesale market, the volumes and cost of electricity (capacity) sales grew by a sound 36% and 33% y-o-y, respectively. The bulk of demand came from Rusenergosbyt LLC building up purchases for JSC Russian Railways and other industrial customers. The cost of electricity (capacity) market. Its commercial sales of electricity and capacity in the WECM for DGK amounted to RUB 49,711 mn in 2018.

WECM electricity sales in non-price zone

<table>
<thead>
<tr>
<th>Item</th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>WECM electricity purchases by PJSC DEX, mn kWh</td>
<td>30,738</td>
<td>30,998</td>
<td>1</td>
</tr>
<tr>
<td>Cost of WEMC electricity (capacity) purchases by PJSC DEX, RUB mn</td>
<td>50,388</td>
<td>51,646</td>
<td>2</td>
</tr>
<tr>
<td>WECM electricity sales by PJSC DEX, mn kWh</td>
<td>8,229</td>
<td>11,157</td>
<td>36</td>
</tr>
<tr>
<td>Cost of WEMC electricity (capacity) sales by PJSC DEX, RUB mn</td>
<td>15,202</td>
<td>20,198</td>
<td>33</td>
</tr>
<tr>
<td>Supply of electricity by DGK, mn Wh</td>
<td>21,388</td>
<td>22,391</td>
<td>5</td>
</tr>
<tr>
<td>Cost of WEMC electricity (capacity) supplied by DGK, RUB mn</td>
<td>48,445</td>
<td>49,711</td>
<td>3</td>
</tr>
</tbody>
</table>

The cost of electricity (capacity) market. Its commercial sales of electricity and capacity in the WECM for DGK amounted to RUB 49,711 mn in 2018.

In 2018, PJSC DEX supplied 22,391 mn kWh in the non-price zone of the Far East’s wholesale electricity (capacity) market. Its commercial sales of electricity and capacity in the WECM for DGK amounted to RUB 49,711 mn in 2018.

The cost of electricity (capacity) supply grew by 3% y-o-y, mainly due to the rising electricity sales volumes and tariff indexation.

Heat market

In the heat generation market of the Far Eastern Federal District, RusHydro is represented by RAO ES East Subgroup and Bureyskaya and Zeyskaya HPPs.

Heat is supplied on a centralized basis from the thermal power plants and boiler stations operated by energy systems. Some energy systems engage in both heat production and distribution, while others do not go beyond production operations.


On July 19, 2017, amendments were introduced to Federal Law No. 190-FZ On Heat Supply dated July 27, 2010 to enable transitioning from fully regulated prices (tariffs) for heat supplies to contractual prices (with certain caps provided for the benefit of consumers). This approach is based on the so-called “alternative boiler” principle, which provides for capping the contractual consumer price at a level sufficient to cover for the construction and maintenance of an alternative boiler station not included in the centralized heat supply system. In some municipalities, a transition to this model has been underway since 2018.

In the Far East, heat tariffs in 2018 were set using the long-term indexation method in line with the Guidelines for Calculation of Regulated Prices (Tariffs) for Heat Supplies approved by FTS Order No. 760-e dated June 15, 2013. The average tariff in DGK zones of operation rose by 4.44%, with the smallest increase (2.74%) recorded by LuTEX in the Primorye Territory and the largest increase (56.97%) recorded by Volchayevskaya boiling station in the Khabarovsk Territory (due to revenue adjustment to account for the discrepancy between the actual tariff calculation metrics and the metrics used for setting the 2016 tariff).

In the isolated zones, average consumer tariffs for heat supplies added 5.57%, with the smallest increase (4.24%) recorded by PJSC Kamchatskinenergo and the largest increase (11.4%) registered by JSC Chukotenergo. JSC UESK reported an average tariff decline of 8.17% compared to the rate approved for 2017 due to the exclusion of RUB 72.2 mn excess fuel income received in 2016 from the required gross revenue for Penzhinsky Municipal District. Tariffs set for PJSC Sakhalinenergo for 2018 were the same as in 2017.

The average tariff in DGK zones of operation rose by 4.44%, with the smallest increase (2.74%) recorded by LuTEX in the Primorye Territory and the largest increase (56.97%) recorded by Volchayevskaya boiling station in the Khabarovsk Territory (due to revenue adjustment to account for the discrepancy between the actual tariff calculation metrics and the metrics used for setting the 2016 tariff).

In the isolated zones, average consumer tariffs for heat supplies added 5.57%, with the smallest increase (4.24%) recorded by PJSC Kamchatskinenergo and the largest increase (11.4%) registered by JSC Chukotenergo. JSC UESK reported an average tariff decline of 8.17% compared to the rate approved for 2017 due to the exclusion of RUB 72.2 mn excess fuel income received in 2016 from the required gross revenue for Penzhinsky Municipal District. Tariffs set for PJSC Sakhalinenergo for 2018 were the same as in 2017.
Reliability and safety of production facilities

RusHydro Group's reliability and safety policy [42-2]

One of RusHydro Group’s strategic goals is to provide reliable power supply that will be safe for people, environment in which the equipment operates, hydraulic structures, and production facilities. The RusHydro Group's Technical Policy defines requirements for the integrated process safety management system, including the industrial safety management subsystem.

The following documents were developed and adopted as part of the industrial safety management system:
- Standard Regulations on In-Process Monitoring of Compliance with Industrial Safety Requirements at Subsidiary’s Hazardous Production Facilities approved by RusHydro’s Order No. 110 of March 11, 2015;
- RusHydro’s In-Process Monitoring Information System (“IPMIS”) commissioned by RusHydro’s Order No. 110 of November 27, 2013. The IPMIS has been deployed across all RusHydro’s branches;
- Integrated analytical database recorder (KRAB-3) improving monitoring efficiency and automating the recording, analysis, and planning of measures prescribed by federal, institutional and internal health, industrial and fire safety supervisory bodies. The recorder was commissioned by Decree No. 157 of December 8, 2015.

RusHydro Group's methodology of identification, classification and recording of hazardous production facilities in the State Register of Hazardous Production Facilities with due regard to operational risks and new requirements of the Russian laws on industrial safety (the “Methodology”) approved by the Federal Environmental, Industrial and Nuclear Supervision Service of Russia (Rostechnadzor) as compliant with Russian industrial safety laws (Rostechnadzor letter No. 00-02-07/16/5 of September 29, 2014);
- RusHydro’s Regulations on the Safety Management System for Hydraulic Structures and Hydroelectric Power Plants (approved by RusHydro’s Order No. 315 of August 8, 2017).

The industrial safety priorities are:
- to continuously enhance and improve industrial safety of the Company’s hazardous production facilities in line with the global best practices by ensuring timely upgrades of process equipment and its safe, reliable and trouble-free operation;
- to establish and maintain an efficient on-site safety monitoring system to enable industrial safety planning and tackling major challenges faced by the Company.

Measuring the above industrial safety goals helps reduce industrial risks associated with hazardous production facilities as a result of better process control, quality of repairs and industrial safety audits.

Ways of ensuring reliable and safe facility operation include:
- quality assurance at design and construction phase;
- external regulatory supervision;
- internal process monitoring;
- compliance with industry and corporate operating standards and procedures;
- implementation of the Technical Policy and engineering system controls.

In pursuance of RusHydro’s Decree No. 50 of February 22, 2018 On the Approval of Target Audit Schedule, Production Unit departments performed target audits of branches and subsidiaries to improve the effectiveness and control of process compliance with applicable safety requirements.

The dual control and monitoring of compliance with industrial safety requirements at hazardous production facilities – both internally and externally (by state supervisory bodies) – secures efficient control over safety and reliability of existing assets.

Allocation of industrial safety responsibilities

<table>
<thead>
<tr>
<th>Functions</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>General control of compliance with industrial safety requirements at hazardous production facilities of RusHydro and production subsidiaries;</td>
<td>Boris Bogush, Member of the Management Board, First Deputy Director General — Chief Engineer</td>
</tr>
<tr>
<td>Methodological support and coordination of industrial safety efforts at the Company's hydropower facilities, including recording of violations, emergency prevention and response;</td>
<td>Industrial and Fire Safety Office of the Industrial and Occupational Safety Department</td>
</tr>
<tr>
<td>Setting up and running internal controls of compliance with industrial safety requirements at hazardous production facilities and hydropower facilities of RusHydro and its production subsidiaries;</td>
<td></td>
</tr>
<tr>
<td>Coordination and control of HQ units, branches and subsidiaries as regards in-process monitoring and compliance with industrial safety requirements;</td>
<td></td>
</tr>
<tr>
<td>Methodological support of the Company’s branches and subsidiaries as regards in-process monitoring of compliance with industrial safety requirements, operation of industrial safety management systems;</td>
<td></td>
</tr>
<tr>
<td>Control over the development and implementation of action plans by Company branches and subsidiaries, to eliminate industrial safety gaps identified by supervisory bodies, as well as annual industrial safety action plans.</td>
<td></td>
</tr>
<tr>
<td>Ensuring operation of hazardous production facilities as required by the Russian laws and RusHydro Group’s internal regulations;</td>
<td></td>
</tr>
<tr>
<td>In-process monitoring along with the development and implementation of industrial safety efforts.</td>
<td></td>
</tr>
</tbody>
</table>

All of RusHydro Group’s production facilities have put in place regulations on in-process monitoring of compliance with industrial safety requirements.

Accident rate at RusHydro Group’s facilities

RusHydro Group accident rate was down 11.5% year-on-year. The vast majority of accidents (over 90%) occurred at RusHydro Group’s grid facilities. In 2018, most accidents (52%) were caused by adverse weather conditions, third parties, animals, or birds. 21% of accidents were due to timely or insufficient equipment maintenance and repair.

Causes of accidents in 2018, %

- Equipment hazards: 25
- Failure to fully comply with the maintenance schedule and work plan: 21
- Unidentified causes: 19
- Impacts caused by animals and birds: 9
- Third party impacts: 8
- Project, structure, manufacturing and assembly flaws (deficiencies): 7
- Employee errors (incl. contractors): 1
System Average Interruption Frequency Index (SAIFI) \[^{[1][2]}\]

<table>
<thead>
<tr>
<th>Grid subsidiaries</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSC UESK</td>
<td>0.31</td>
<td>0.20</td>
<td>0.35</td>
</tr>
<tr>
<td>PJSC Kamchatkenenergo</td>
<td>0.557</td>
<td>2.05</td>
<td>1.318</td>
</tr>
<tr>
<td>JSC Sakhalenenergo</td>
<td>12.9</td>
<td>11.43</td>
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<tr>
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<td>6.21</td>
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<td>6.22</td>
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<tr>
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<td>1.23</td>
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<td>JSC Chukotenergo</td>
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<td>PJSC Mobile Energy</td>
<td>0.005</td>
<td>0.0043</td>
<td>0.0054</td>
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</table>

System Average Interruption Duration Index (SAIDI) \[^{[1][2]}\]

<table>
<thead>
<tr>
<th>Grid subsidiaries</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
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<tbody>
<tr>
<td>JSC UESK</td>
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<td>2.14</td>
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<td>PJSC Kamchatkenenergo</td>
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<td>PJSC Magadanenergo</td>
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<td>Far Eastern Distribution Company</td>
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<td>JSC Geoterm</td>
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<td>JSC Chukotenergo</td>
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<td>2.5</td>
<td>1.9</td>
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Program of Stable Power Grid Operation in the Sakhalin Region

- The Sakhalin Region has one of the most troublesome power grids in terms of power outages, as the island is exposed to violent winds and heavy snowfalls.
- As instructed by Minutes No. YUT-P9-13 of March 18, 2016 of the meeting at the office of Yury Trutnev, Deputy Prime Minister of the Russian Federation and Presidential Plenipotentiary Envoy to the Far Eastern Federal District, the Government of the Sakhalin Region and RusHydro Group developed the Program of Stable Power Grid Operation in the Sakhalin Region.
- The Program is expected to help tackle the key issues causing disruptions in Sakhalin’s power grid, including inadequate design solutions used in the construction of high-voltage overhead power lines, which do not take into account actual local weather conditions, as well as increasing wear and tear of the equipment and power transmission lines.
- The Program saw 55 priority projects listed with respect to PJSC Sakhalinenergo’s (included in RusHydro Group) area of responsibility and operation, including renovation/construction projects for 35–220 kV overhead power lines (33 lines, 936 km) and 22 substations (789 MVA). With total investments over a ten-year horizon estimated at RUB 40 bn, the projects are now facing a financing shortage of RUB 25 bn. The Program has been approved by the Government of the Sakhalin Region, Russian Ministry of Energy and PJSC RusHydro. To the extent permitted by tariffs, Sakhalinenergo is implementing the Program as part of its own investment program.

Preparedness for natural disasters and emergencies

RusHydro Group is responsible for reliable and uninterrupted operation of its facilities. To this end, a system was implemented at the Group’s assets to prevent and respond to natural disasters and emergencies. In particular, efforts are made to prevent process upsets and accidents, and if an interruption occurs, the Company does its best to bring the facility operation back to normal as soon as reasonably possible. Furthermore, employees of RusHydro have regular trainings in civil defense and emergency response.

Key potential sources of natural disasters at RusHydro’s production facilities:
- high magnitude low-frequency flood may result in boosting the headrace, overflowing hydraulic structures, waterfront destruction in junction areas, and a hydrodynamic accident following by the flooding of adjacent areas;
- during emergency alerts, there is a risk of electrical grid accidents caused by wire breaks or overlapping and short circuits at transformer stations followed by power outages in residential areas, administrative buildings, and production facilities;
- river overflowing its banks may cause the flooding and failure of pylons, possibly resulting in power outages in commercial and residential buildings.
- technological emergencies affecting equipment (including electrolysis plants (hydrogen receivers), gas distribution stations, boiler units and turbo generators) and grid infrastructure may cause interruptions or failures of power and heat generation or supply;
- accidental oil spill affecting economic assets and people.

In RusHydro Group, the following parties are responsible for the protection of population and territories from emergencies:
- Situation Analysis Center and Industrial and Occupational Safety Department (as regards fire safety) at the Headquarters. They report to Member of the Management Board, First Deputy Director General – Chief Engineer of the Company;
- first deputy directors – chief engineers with the direct involvement of civil defense and emergency response engineers reporting to them – at the Group’s branches;
- employees authorized to deal with the issues of civil defense and protection of population from natural and industrial emergencies – at RusHydro’s subsidiaries.

RusHydro prevents and responds to emergencies in full accordance with regulatory requirements of Russian laws applicable to hydraulic structures and hazardous production facilities. For the purpose of rescue and emergency recovery operations, the Company has established an insurance fund of documentation for RusHydro Group’s hazardous facilities. The insurance fund is held on file by authorities.

All RusHydro Group’s facilities have:
- action plans for natural and industrial emergency prevention and response, as well as action plans for oil and petrochemicals spill prevention and response approved by local bodies of the Ministry of the Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM);
- hydraulic structures safety declarations updated (revised) at least once in every five years subject to obligatory audit of such hydraulic structures by ad hoc commissions in collaboration with design and R&D institutions;
- facility safety certificates;
- special machinery for prompt response to potential damage or accidents (for facilities with own (or contractor’s) fire stations);
- emergency and rescue equipment.

Volunteer emergency response teams and contractors’ professional emergency response teams have been established and maintained at all RusHydro Group’s facilities operating extremely dangerous and highly dangerous hydraulic structures of class 2 and class 3 hazard class facilities with civil defense categories duly assigned.

\[^{[1]}\] The System Average Interruption Frequency Index (SAIFI) is calculated using the formula \( \frac{\sum_l N_i}{NT} \), where \( N_i \) is the number of customers and \( U_i \) is the annual outage time for location \( i \), and \( NT \) is the total number of customers served. The index is calculated for the entire location served.

\[^{[2]}\] The System Average Interruption Duration Index (SAIDI) is calculated using the formula \( \sum_l \frac{N_i}{U_i} \), where \( N_i \) is the number of customers and \( U_i \) is the annual outage time for location \( i \), and \( NT \) is the total number of customers served. The index is calculated for the entire location served.

The Company’s emergency prevention and response and fire safety commission (the “Commission”) is the supervisory body of the subsystem responsible for the timely situation assessment and decision-making on emergency prevention. The Commission’s annual action plans stipulate efforts to facilitate the safe passage of flood water during the spring and summer period, prepare for the fall and winter peak loads, and secure the stable operation during the fire and storm seasons. The Commission manages and coordinates the operations of permanent bodies and management bodies responsible for day-to-day operations of the functional subsystem.

Permanent bodies of the Company’s functional subsystem management – the Situation Analysis Center’s team specializing in civil defense, emergency prevention and response, and civil defense and emergency engineers at generating branches and subsidiaries – are responsible for the planning of emergency prevention, coordination of emergency prevention and response activities in accordance with laws and regulations of the Russian Federation and internal documents of the Company. Management bodies responsible for day-to-day operations of the Company’s functional subsystem – the Situation Analysis Center’s duty shift and duty shifts at generating branches and subsidiaries – conduct 24/7 situation monitoring at facilities, give notices of any equipment failures identified, and carry out priority emergency prevention activities. Local alarm systems are in place at 31 facilities of the Group.

For the purpose of emergency prevention and response, RusHydro established resource stockpiles at its branches operating hydraulic structures and a dedicated financial reserve at RusHydro. The dedicated financial reserve for emergencies was established on a centralized basis in the interests of RusHydro’s branches by transferring 1% of the average monthly revenue from electricity and capacity sales. All subsidiaries have established the required financial reserves and resource stockpiles for emergency prevention and response.

Emergency recovery exercises

Employees are trained in emergency recovery as part of the corporate civil defense and emergency response training program. The list of persons to be trained was made in accordance with Russian laws and regulations.

Pursuant to the schedule for 2018, RusHydro Group conducted:

- 32 comprehensive exercises;
- 433 facility-based exercises;
- 97 table top exercises and training sessions;
- 60 tactical training exercises.

In 2018, 244 people passed training or advanced professional training at training centers and civil defense courses, including three civil defense managers and 53 chairmen and members of emergency prevention and response and fire safety commissions.

Prevention of injuries and fatalities involving the Company’s assets

A special occupational safety focus is the prevention of individual injuries arising from interaction with the Company's assets. This issue is primarily covered through mass media (articles published in printed and online media) and safety lessons at school on hazardous and harmful health impact of various power installations in the event of exposure within the hazard distance.

Legal proceedings were launched in 2018 in connection with two individual injuries, including those taking place at JSC DRSK assets. A compensation for moral damages of RUB 200,000 was awarded on one of the cases (injury suffered in 2016), while the second suit was dismissed without hearing.

RusHydro Group’s labor protection and industrial safety objectives:

- preventing occupational injuries and diseases;
- creating safe employee behavior patterns and hazard prevention skills;
- improving working conditions on an ongoing basis.

Occupational health and safety management at RusHydro

Workplace safety management framework

The fundamental document that defines the principles of workplace safety at RusHydro is the Health and Safety Policy (approved by Order No. 327 of April 20, 2015).

Also, the Company has health and safety regulations in place as follows:

- regulations on Occupational and Fire Safety Day at RusHydro’s branches (approved by Order No. 300 of April 25, 2016);
- and Temporary Regulations for Authorization of Building and Fitting Contractors and Seconded Staff to Operate at RusHydro’s Sites (approved by Order No. 736 of November 13, 2008).

RusHydro Group’s labor protection and industrial safety objectives:

- protecting the life and health of the Group’s employees in the workplace;
- preventing occupational injuries and diseases;
- creating safe employee behavior patterns and hazard prevention skills;
- improving working conditions on an ongoing basis.

Occupational health and safety management includes:

- management decisions on organizational, technical, sanitary and hygienic, treatment and preventive, medical and social measures aimed at ensuring safety;
- protection of employee capability, health and life in the workplace, monitoring of employee compliance with occupational safety, fire prevention and industrial safety requirements.

Distribution of responsibility for occupational health and safety management at RusHydro

<table>
<thead>
<tr>
<th>Member of the Management Board, First Deputy General Director – Chief Engineer</th>
<th>Industrial and Occupational Safety Department</th>
<th>Health and safety functions at branches and subsidiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤ Management of health and safety activities at hydropower facilities</td>
<td>➤ Development, oversight and control of occupational health and industrial safety measures at the Company level</td>
<td>➤ Development, oversight and control of occupational health and industrial safety measures directly at branches and subsidiaries</td>
</tr>
</tbody>
</table>
Key focus areas in occupational health and safety management for 2018

Occupational safety training and knowledge assessment
- Free-of-charge occupational safety training and knowledge assessment for employees and labor safety officers.
- Employee training for a new job with internship in the workplace.
- Emergency and fire response drills.
- Occupational health and safety briefings for in-house and contractor staff.
- Special and advanced staff training.
- Demonstrations for crews before work authorization.
- Occupational Safety Days on a monthly basis.
- Training staff for winter seasons.
- Thematic events, including those aimed at:
  - Venting injuries in electrical installations, work at height, confined spaces, pressure equipment, construction work, loading and unloading operations, lifting equipment, appliances and mechanisms;
  - Enhancing workplace culture;
  - Promoting traffic safety;
  - Training staff for winter seasons;
- Staff interviews and meetings.
- Overviews of injuries in electrical installations and development of injury prevention measures.
- Workplace rounds to identify violations of occupational, industrial and fire safety rules by in-house and contractor staff.
- Reviews of proposals from employees, trade unions or other employees authorized bodies aimed at improving working conditions and occupational safety.
- Occupational health and safety provisions in formal agreements with trade unions.

Identification of occupational hazards
- Special assessment of working conditions to identify occupational hazards. Assessment of workplace conditions, definition of their class.
- Operational control of compliance with sanitary rules as well as sanitation and epidemic prevention measures (laboratory tests, working environment surveys).
- Social guarantees and compensations to employees working in hazardous conditions following the special assessment (reduced hours, additional leave, therapeutic and preventive nutrition).
- Mandatory regular medical and psychiatric examinations (check-ups).
- Medical aid to the insured according to the programs of outpatient care, stationary, emergency medical aid as part of VHI.
- Outpatient care, emergency and routine inpatient treatment, emergency medical aid and foreign travel insurance as part of VHI.
- Annual preventive measures (employee vaccination and examinations) to reduce threats to human life or health, as part of VHI.
- Emergency and fire response drills.
- Operational control of compliance with health and safety requirements by contractors’ teams engaged by the Company’s branches.
- Drafting RusHydro Group’s accident response guidelines to prevent injuries;
- Monthly and quarterly Group-wide occupational safety (including fire safety) days with progress reviews;
- Measures to prevent occupational injuries;
- Medical examinations of employees working in hazardous and harmful conditions, and implementation of measures recommended in post-examination reports;
- Mandatory psychiatric examination of employees engaged in certain activities, including high-risk operations (with exposure to harmful substances and occupational hazards), or working in a high-risk environment;
- Purchasing and restocking first-aid kits;
- Potable water supply to employees;
- Infection disease prevention;
- Personal preventive vaccination;
- Occupational safety training and knowledge assessment.
- Mandatory regular medical and psychiatric examinations (check-ups).
- Ensuring compliance with health and safety requirements by contractors’ teams engaged by the Company’s branches.
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- Mandatory psychiatric examination of employees engaged in certain activities, including high-risk operations (with exposure to harmful substances and occupational hazards), or working in a high-risk environment.
- Purchasing and restocking first-aid kits.
- Potable water supply to employees.
- Infection disease prevention.
- Personal preventive vaccination.
- Occupational health and safety briefings.
- Inspections of workplaces.
- Setting up health and safety rooms and areas across the Company.
- Purchasing stands, equipment and simulators, visual aids, learning software.
- Buying technical standards documents, including their electronic versions.
- Holding health and safety trainings and employee knowledge checks.
- Training employees on first aid to the injured using robot simulators and distance learning.
- Overviews of injuries in the Russian electric power industry.
- Arranging for employee visits to sports facilities and swimming pools.
- Centralized procurement of protective clothing and footwear for the Company’s branches.
- Providing employees with protective clothing, footwear and personal protective equipment (PPE).
- Organizing PPE storage, care, repair and replacement.
- Providing employees with detergents and decontaminants.
- Providing milk or equivalent products to employees working in hazardous conditions.
- Disinfection and deratization measures.
- Assessment of working conditions and implementation of follow-up action plans to provide better and healthier working conditions.

Health and safety expenses, RUB mn

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>RAO ES East Subgroup</th>
<th>RusHydro</th>
<th>RAO ES East Subgroup excluding PJSC RusHydro</th>
<th>PJSC RusHydro</th>
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<tr>
<td></td>
<td>1,632.8</td>
<td>1,774.8</td>
<td>1,394.3</td>
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<tr>
<td>Personnel costs</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>172</td>
<td>210.1</td>
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One of the Company’s priorities is to make sure that the special assessment of workplace conditions covers more employees and workplaces comply with statutory health and safety requirements. The assessment of 100% workplaces takes place as scheduled.

Overall, review of occupational injuries and diseases helped identify six occupational hazards that had led to a serious injury or occupational disease.

Health and safety expenses, RUB mn

<table>
<thead>
<tr>
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</table>
Injuries and occupational diseases (403-2) (403-1)

In 2018, RusHydro Group had 32 accidents to their own staff that resulted in 41 injuries, including six fatalities. The accidents caused injuries to six managers, five skilled specialists and 30 workers. Injuries mainly occurred due to inadequate work management by contractors’ employees in charge (code 08). Each accident was investigated, with urgent preventive measures put in place.

<table>
<thead>
<tr>
<th>Number of casualties in 2016–2018</th>
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<tr>
<td>Year</td>
</tr>
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<tr>
<td>2018</td>
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</table>

Hazardous factors (occupational hazards) that may cause injuries or occupational diseases

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Number of severe injuries and occupational diseases caused by an occupational hazard</th>
<th>Action taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical hazards</td>
<td>5</td>
<td>The Company has taken urgent preventative measures and developed an action plan to eliminate the impact on others</td>
</tr>
<tr>
<td>Electrical hazards</td>
<td>1</td>
<td>Control over medical examinations, PPE availability and use, supervision of weight lifting in excesses of approved limits</td>
</tr>
<tr>
<td>Thermal hazards</td>
<td>1</td>
<td>Control of medical examinations</td>
</tr>
<tr>
<td>Labor severity and intensity hazards</td>
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</tr>
<tr>
<td>Noise hazards</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

PLANS FOR IMPROVING HEALTH AND SAFETY IN 2019 (403-2)

- Draft a policy in line with the Group’s risk-based approach.
- Actively engage employees in occupational health and safety improvements to boost performance and reduce occupational diseases and workplace accidents.
- Maintain strong employee competencies, leverage innovative health and safety practices, ensure collaboration and exchange of information between health and safety experts and employees, develop and implement effective initiatives to identify, eliminate or limit hazards and risks and preserve employee life and health throughout the employment period.
- In 2018, RusHydro Group recorded five occupational diseases. Occupational diseases (hazards) are caused by noise and labor severity.
- In each case, the Company issued a relevant report followed by stricter control over medical examinations to enable early diagnosis and minimize the risks of developing chronic diseases.
- The following measures were taken to prevent occupational diseases:
  - providing milk or equivalent products to employees working in hazardous conditions;
  - supplying effective individual hearing protection means;
  - reimbursing for costs related to additional medical check-ups;
  - organizing health resort treatment and sports activities;
  - educating on how to prevent infectious diseases;
  - personnel preventive vaccination;
  - restocking first aid kits;
  - supply of potable water and vitamins;
  - supply of detergents and decontaminants.

Categories of injured employees in 2018

Categories of injured employees in 2018

Number and types of injuries in 2018

Categories of employees with fatal and severe injuries in 2018

1 Rate of recordable work-related injuries = Number of recordable work-related injuries * 1,000,000 man-hours / average number of workers in the reporting year.
Energy consumption and efficiency

The Russian Federation as RusHydro’s main shareholder ensures energy companies’ commitment to increasing energy security and reducing energy intensity. The Energy Efficiency and Development national program approved by Resolution No. 321 of the Russian Government of April 15, 2014 sets out three key areas for improving energy efficiency across all types of energy resources:

- energy saving and improving energy efficiency;
- development and modernization of electric power industry; and
- promotion of renewables.

RusHydro Group’s energy saving initiatives are governed by Federal Law No. 241-FZ On Energy Saving and Improving Energy Efficiency and Amendments to Certain Legislative Acts of the Russian Federation dated November 23, 2009 and the respective programs of energy saving and increased energy efficiency.

HPPs have their own specific, which requires a special approach to assessing and improving their energy efficiency. That is why RusHydro launched the Program of Energy Saving and Increased Energy Efficiency through to 2020 (ESEEIP) specifically intended for HPPs and providing for the list of key initiatives for increasing the efficiency of energy and water resources as well as a number of priority energy saving solutions. In 2017, the program was updated following the review by the Russian Ministry of Energy to be aligned with changes to the applicable laws and regulations. The updated program is based on energy audits held in 2010 through 2016. In 2018, the Ministry of Energy registered RusHydro’s Energy Performance Certificate for another five-year period.

That same year, JSC RAO ES East’s companies engaged in regulated activities updated and approved their programs of energy saving and increased energy efficiency for 2019–2024 in reliance on the updated Regulations for Developing Negotiating, Approving, Implementing and Monitoring Programs for Energy Saving and Improving Energy Efficiency for Subsidiaries Engaged in Regulated Activities approved by RusHydro’s Order No. 462 of July 2, 2018.

Energy efficiency of hydropower

In addition to power generation, HPPs serve multiple functions which are critically important both for the industry and the communities at large. These include hydrotechnical tasks (river runoff control, flood prevention), irrigation of agricultural lands, transportation (vehicle and railway traffic across rivers) as well as waterborne traffic.

In this connection, HPPs sometimes have to meet direct opposite requirements, so it is quite a hard task to analyze their performance. For example, discharge of water reduces the overall energy efficiency but provides a vital river runoff. Moreover, the generators operating in the synchronous compensator mode also reduces the overall efficiency but ensures the stability of the energy system as a whole. (103)

Since HPPs require no specific fuel to produce electricity, the performance analysis counts out this main cost item inherent in other types of power plants, with the exception of renewables. Therefore, the focus is on own consumption by HPPs.

Key areas for improving RusHydro’s energy efficiency:

- modernization of interior and exterior, routine and emergency lighting systems (partially based on automatic controls);
- modernization of HVAC systems for powerhouses and auxiliary buildings (including weather controls);
- rehabilitation of heated buildings and facilities, elimination of warm air leaks, reduction in indoor infiltration;
- rehabilitation of heating and hot water supply systems, electric boiler houses, modernization of pump stations, elevators (replacing mechanisms for frequency-regulated drives);
- replacement of hydropower units with ones with a higher efficiency rate, modernization of automatic control and excitation systems;
- modernization and rehabilitation of hydraulic structures, including service, emergency and repair gates, phased rehabilitation of water intakes and industrial water disposal areas; and
- replacement of power transformers with energy saving ones, replacement of air circuit breakers with gas-insulated ones (as compressors are phased out).

Better usage of water resources

Better usage of water resources is another way to improve the HPP energy efficiency which helped reduce water discharge above turbine flows and increase carbon-free generation by at least 530 mn kWh in 2018 through the following initiatives:

- RusHydro, JSC SO UIPS and PJSC FGC UES teamed up to optimize the repair schedules for power generation facilities and grids at Sayano-Shushenskaya HPP, which translated into an additional output of 250 mn kWh thanks to the ruling out of water discharge above turbine flows in August 2018;
- RusHydro efficiently redistributed automatic load-frequency control (ALFC) reserves at the Volga-Kama cascade in a high-water season, which translated into additional output of 200 mn kWh (reducing water discharge above turbine flows by 3.3 cu km); and
- following its modernization, Zhigulevskaya HPP now operates at full capacity in a high-water season. Its capacity gained 177.5 MW translating into an additional 80 mn kWh in a high-water season.

Energy efficiency of electrical grids

Key ESEEIP initiatives in 2018:

- replacement of wires with heavier-gauge ones at overloaded power transmission lines and replacement of overhead power lines with self-supporting insulated wires; and
- replacement of underloaded and overloaded transformers.

To reduce grid losses and optimize energy consumption, the Company kept on installing commercial-grade electricity and heat meters while also modernizing and introducing the automated electric power accounting system.
Efficiency of energy utilization

Own consumption by energy resource in 2018 [201-1]

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas, '000 cu m</td>
<td>446</td>
<td>270</td>
<td>4,328</td>
</tr>
<tr>
<td>Diesel fuel, tonnes of natural fuel</td>
<td>7</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Other fuel, tonnes of equivalent fuel</td>
<td>18,045</td>
<td>27,647</td>
<td>29,322</td>
</tr>
<tr>
<td>Heat, Gcal</td>
<td>19,482</td>
<td>27,868</td>
<td>28,443</td>
</tr>
<tr>
<td>Electricity, '000 kWh</td>
<td>70,610</td>
<td>87,151</td>
<td>87,151</td>
</tr>
</tbody>
</table>

Energy efficiency of heating grids

Key ESIEE initiatives in 2018:
- Comprehensive equipment modernization at heat substations and rehabilitation of heat pipelines using heat proof materials.
- TPPs heavily rely on electricity for own consumption accounting for a hefty 10-16% of RusHydro Group’s electricity generation. By contrast, HPPs rarely consume more than 1.5%.

Fuel consumption in 2016–2018

In 2016, the ESIEE helped RusHydro and its subsidiaries (HPPs) save 41,443,000 kWh on own consumption and additionally generate 56,915,000 kWh, having spent RUB 2,874 mn on energy saving and energy efficiency initiatives.

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In 2018, 7 PAO ES East’s TPPs produced more electricity as compared to 2017 marginally increasing their consumption, with DGK accounting for the bulk of electricity generation. In 2018, its electricity output rose by 4.4% y-o-y, or 1,099 mn kWh (2017: 24,758 mn kWh).

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**INNOVATIONS**

**Innovative Development Program of RusHydro Group for 2016–2020 with an outlook until 2025**

The Innovative Development Program of RusHydro Group is a policy paper that sets out the focus and framework of the Group’s innovations and specifies the amounts and sources of funds to be spent on its innovative projects.

Prior to approval by the Board of Directors, RusHydro’s draft Innovative Development Program was agreed with the Ministry of Education and Science of the Russian Federation and the Ministry of Energy of Russia, and then reviewed and approved by the Interdepartmental Commission for Technological Development of the Presidium of the Presidential Council for Economic Modernization and Innovative Development of Russia (Minutes No. 8-DO1 of September 23, 2016).

RusHydro’s approved Innovative Development Program was reviewed and evaluated by the Interdepartmental Working Group on the Implementation of Innovative Development Priorities under the Presidium of the Presidential Council for Economic Modernization and Innovative Development of Russia (Minutes No. 1 of April 14, 2017).

In the medium term, it aims to improve RusHydro Group’s economic and operational efficiency by using innovative engineering, technical and management solutions focused on:

- extending lifespans and improving performance of equipment;
- enhancing reliability and economic efficiency of equipment;
- improving the quality of equipment diagnoses coupled with proactive identification and mitigation of operational risks;
- import substitution and reducing the dependence on imported equipment;
- reducing the environmental footprint; and
- improving energy efficiency and cutting losses.

In the long term, the Innovative Development Program of RusHydro Group aims to:

- Assure the Company’s position as one of the most technologically advanced energy companies, both domestic and international, including via:
  - development of efficient construction, modernization and repair processes for power generation facilities;
  - development of real-time monitoring technologies for the core equipment;
  - automation and robotization of maintenance and repair; and development of new innovative products based on RusHydro’s know-how and expertise (e.g. energy efficiency and storage solutions, EV infrastructure, and advanced materials);
- Ensure deeper engagement in green energy, including via:
  - development of hydropower potential in certain regions of Russia;
  - development of RES-based alternative energy infrastructure (geothermal power generation); and
  - analysis and development of mini-hydro solutions.

The innovative development programs of RusHydro Group and RAO ES East Subgroup have been integrated as follows:

- R&D expenses, % of revenue;
- growth in the quantity of IP assets on the balance sheet in the reporting period, %; and
- heat efficiency, % (for JSC RAO ES East only).

**KPI for the Innovative Development Program of RusHydro Group**

<table>
<thead>
<tr>
<th>KPI</th>
<th>2018</th>
<th>Target 2019</th>
<th>2020</th>
<th>Result 2018</th>
<th>Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D expenses, % of revenue</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.28</td>
<td>Delivered</td>
</tr>
<tr>
<td>Growth in the quantity of IP assets on the balance sheet, %</td>
<td>5.5</td>
<td>6.5</td>
<td>7</td>
<td>6.7</td>
<td>Delivered</td>
</tr>
<tr>
<td>Efficiency of hydropower capacity management, employees per 100 MW</td>
<td>20.52</td>
<td>20.36</td>
<td>20.13</td>
<td>21.19</td>
<td>96.9%</td>
</tr>
<tr>
<td>Innovative products purchased, % of total volume</td>
<td>1.21</td>
<td>1.33</td>
<td>1.46</td>
<td>1.21</td>
<td>Delivered</td>
</tr>
<tr>
<td>HPP repair expenses, ‘000 RUB/MW (at 2000 prices)</td>
<td>19.9</td>
<td>19.8</td>
<td>19.6</td>
<td>12.86</td>
<td>Delivered</td>
</tr>
</tbody>
</table>

**Integrated innovative development management for RusHydro and RAO ES East Subgroup**

The innovative development programs of RusHydro Group and RAO ES East Subgroup have been integrated as follows:

- R&D expenses, % of revenue;
- growth in the quantity of IP assets on the balance sheet in the reporting period, %; and
- heat efficiency, % (for JSC RAO ES East only).

**Amounts and sources of funds spent on the Innovative Development Program**

In 2018, spending on the Innovative Development Program of RusHydro Group totaled RUB 655.4 mn (without the Innovative Development Program of JSC RAO ES East), while the figure for the Innovative Development Program of RAO ES East Subgroup amounted to RUB 1,717.5 mn.

The equivalent KPI for R&D expenses across RusHydro Group stood at 0.28, or 112% of the target, in 2018.

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1. Approved by RusHydro’s Board of Directors on November 22, 2016 (Minutes No. 244 of November 23, 2016).
2. An “inverse” indicator (the lower the better).

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**THE INNOVATIVE DEVELOPMENT PROGRAM OF RUSHYDRO GROUP IS FUNDED SOLELY WITH ITS OWN CAPITAL.**
Focus of innovations in 2018

Given the industry’s rapid technological development, it is no longer sufficient to adjust corresponding priorities once in five years (as requires the planning horizon for our Innovative Development Program).

In 2018, RusHydro compared the Group’s technological capabilities and innovation KPI with those of its major peers (the “Comparators”) to review its development priorities in this field.

The key objective was to identify attractive areas and technologies, assess their actual potential, and set ambitious but feasible technological development goals for RusHydro Group.

The results are now used to draft proposals on amending the Innovative Development Program, compile a list of technologies crucial to the Group’s further development, and plan measures to bring it on a par with more technologically advanced peers.

R&D projects

RusHydro Group is committed to ramping up its R&D investments. In 2018, they grew by 59.3% to RUB 642.6 mn (incl. VAT).

2018 R&Ds were aimed at addressing the most significant (critical) process problems of RusHydro Group related with the prevention of the risks of process upsets leading to the undersupply of electricity to consumers and significant economic losses.

Key R&D projects implemented by RusHydro Group to ensure sustainable development

**Description**

Pilot testing of the digital testing complex at Nizhegorodskaya HPP

**Objectives:**

- to increase the guaranteed measurement accuracy; ensure high electromagnetic immunity and low susceptibility to vibration and temperature fluctuations;
- to improve the electromagnetic compatibility of modern protective relaying equipment with automated process control systems by using optical fibers;
- to prevent saturation, ferroresonance and undesirable transient events; and
- to perform self-diagnosis and online monitoring.

**Solution:**

- to install optical and electronic measuring devices.

Pilot testing of the digital complex followed integrated tests in 2018 as part of the Development and Implementation of an Automated Protection and Management System for Next-Generation Electrical Substations national project, which had been initiated by the Russian Ministry of Energy. Results will be used to draft recommendations on a further rollout across RusHydro Group.
### OUR PERFORMANCE

**Development and implementation of a process to partially restore heat transfer surface elements of cogeneration heat exchange equipment (tubes) instead of replacing the entire tube bundle**

**Objective:**
- to develop and implement a process to partially restore heat transfer surface elements of cogeneration heat exchange equipment (tubes) instead of replacing the entire tube bundle and thereby improve its performance, which includes exploiting the properties of a set of thermal conductive materials and developing a process and a commercial prototype for application of a protective coating to damaged elements (tubes) of a heat exchanger's tube bundle.
- to apply specialty epoxy coating (BLOKOR-MX(11)S).

**Solution:**
- Epoxy coating (BLOKOR-MX(11)S) developed in 2018 along with a modular (block) pilot machine designed to apply it evenly along the inner surfaces of heat exchange tubes.
- Pilot testing (application of the protective coating and in situ tests) underway at Khabarovskaya CHPP-3.

**Design of avalanche-resistant pylons and foundations for 220 kV power lines**

**Objective:**
- to cut operating costs for overhead power lines by reducing expenses associated with emergency recovery operations to fix pylons damaged by avalanches.

**Solution:**
- to design special avalanche-resistant pylons and foundations compliant with building codes and regulations, including seismic performance requirements.

**Design of a composite power line conductor core based on thermoplastic resins**

**Objectives:**
- to achieve a 50% higher current-carrying capacity and reliability vs ACSR conductors without adding weight (resulting in savings on account of the increased quantities of transmitted power).
- to make overhead power lines and the entire grid more reliable by reducing the ice and wind load on pylons (resulting in extended conductor lifespans); and
- 15% to 40% lower costs of building new crossings as fewer pylons will be required.

**Solution:**
- to design a composite power line conductor core based on thermoplastic matrices along with manufacturing equipment.

#### R&D effect on the Company’s risks

Damage caused by natural and industrial disasters outside RusHydro Group’s facilities is one of the key risks for the Company.

This risk results from the underprotection of RusHydro Group’s production assets against natural disasters.

The risk management initiatives provided for by the 2018 calendar plan include the following R&D projects:
- research and development in the field of remote monitoring of HPP facilities condition and operating modes. Development of a technique to assess the condition of hydraulic structures and hydropower units at HPPs based on the monitoring of the amplitude and frequency of vibrations along with the earth foundation;
- development and testing of a technology to monitor structural stress in case of a tensiometer failure;
- development of a hardware and software system for monitoring and forecasting the reliability of HPP/PSPP hydraulic structures in geologically challenging environments;
- development of an automated warning system to detect ruptures and measure turbine flows at RusHydro’s diversion and impoundment HPPs;
- development of recommendations on how to assess human impact in the wake of the condition of machinery and hydraulic structures and HPP energy efficiency;
- research into new technologies to repair and rehabilitate hydraulic structures and their elements extending their lifespan and reliability, development of implementation guides; and introduction of an expert system to support decision-making in response to incidents, accidents and emergencies at RusHydro Group’s production facilities.

#### Business process digitalization at RusHydro Group

RusHydro Group launched its Digitalization Program in 2018 and plans to develop a Digital Transformation Blueprint in 2019. Currently, the Program includes 22 digital projects covering virtually all business lines of the Group such as hydropower and heat generation, grid assets, and sales.

**Key focus areas:**
- supporting operational management of RusHydro’s production and grid assets and developing internal capabilities for condition-based repairs;
- building infrastructure to collect, process, store and escalate knowledge; and develop remote control over facilities and systems; and
- leveraging advanced technologies to ensure external communications, including transfer of technical data.

**Key milestones:**
- building advanced integrated multi-service information and telecommunications infrastructure; and
- transforming production chains and processes, governance models and planning procedures; using analytical systems to process Big Data to support decision-making; and relying on cross-industry cooperation to build shared services in support of governance models.

RusHydro Group has a distance learning system up and running, which is made accessible to the employees of RusHydro’s HQ, branches and subsidiaries.

In compliance with the respective import substitution directives of the Russian Government, RusHydro Group developed and approved the Action Plan for 2018-2021 which provides for the Group’s increased reliance on domestically developed software.

<table>
<thead>
<tr>
<th>Description</th>
<th>Progress in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D effect on the Company’s risks</td>
<td></td>
</tr>
</tbody>
</table>
| Business process digitalization at RusHydro Group | }
PROCUREMENT

Procurement management

To support its activities, RusHydro Group purchases large quantities of works, services, raw materials (including fuel) and products from third parties. RusHydro Group has in place a number of internal by-laws to prevent inappropriate and inefficient use of funds.

Procurement by RusHydro is governed by the applicable Russian laws, including Federal Law No. 223-FZ On Procurement of Goods, Works and Services by Certain Types of Legal Entities dated July 18, 2011 and the Regulations on Procurement (approved in 2018 by resolution No. 265 of RusHydro’s Board of Directors No. 265 dated February 6, 2018, restated as the Uniform Regulations on RusHydro Group’s Procurement Policy effective as of November 1, 2018 pursuant to resolution No. 277 of RusHydro’s Board of Directors No. 277 dated October 4, 2018), whereby:

» the CPC appoints standing procurement commissions, which are directly authorized to arrange for and carry out procurement procedures. Depending on the scope of powers, there are procurement commissions of level 1 and level 2 as well as ad hoc commissions.

The objectives and principles of the Uniform Regulations on RusHydro Group’s Procurement Policy

The Regulations on Procurement set out the following objectives and principles:

Procurement regulation aims to ensure timely and efficient supply of goods, works and services to the customer as well as prudent use of the customer’s funds.

Procurement regulation relies on rational use of special procedures to make purchases on an arm’s length basis as closely as practicable and provides for mandatory procedures to be followed by the officers in charge of procurement.

These procedures ensure:

» careful planning of demand;
» market research;
» procurement transparency;
» focus on equality and fairness, with no discrimination or unreasonable restrictions on competition among participants where possible, or, if impossible, enhanced internal control;
» intended and efficient use of funds allocated for purchasing goods, works and services (taking into account their life cycle cost, where applicable), and implementation of cost-cutting initiatives;
» no restrictions on participation in the procurement in the form of non-measurable requirements for participants;
» efficient and fair selection of preferred suppliers following a comprehensive SWOT analysis (with price and quality being the key factors); and
» follow-up on contracts and use of goods, works and services purchased.

Implementation of the annual comprehensive procurement program

In 2018, total value of contracts awarded under procurement procedures at RusHydro Group amounted to RUB 270,704 mn (incl. VAT), down by 10% to 17,445 due to a 14% increase at JSC RAO ES East Subgroup. Open bidding accounts for over 50% of all procurement procedures, of which 99% run on an electronic trading platform.

RusHydro publishes information on planned procurement activities and places up-to-date official announcements describing the scope of procurement (item name), material terms of the competitive procurement and other details on its official website in Russia at www.zakupki.gov.ru as well as on the electronic trading platform at https://rushydro.roseltorg.ru.

Following the competitive procedure, the Company publishes the procurement results specifying the winning bidder and the respective price. [102-2]

Procurement, RUB mn (incl. VAT)

<table>
<thead>
<tr>
<th>Type of Procurement</th>
<th>2017 RusHydro Subgroup</th>
<th>2018 RusHydro Subgroup</th>
<th>2017 RAO ES East Subgroup</th>
<th>2018 RAO ES East Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic procurement</td>
<td>32,09</td>
<td>32,09</td>
<td>45,95</td>
<td>45,95</td>
</tr>
<tr>
<td>Procurement through open bidding</td>
<td>67,79</td>
<td>67,79</td>
<td>52,69</td>
<td>52,69</td>
</tr>
<tr>
<td>Single-source procurement</td>
<td>32,09</td>
<td>32,09</td>
<td>45,95</td>
<td>45,95</td>
</tr>
<tr>
<td>Procurement through closed bidding</td>
<td>0</td>
<td>0</td>
<td>0.29</td>
<td>0.29</td>
</tr>
</tbody>
</table>

And also on the electronic trading platform: https://rushydro.roseltorg.ru.
Procurement is mostly (in money terms) for works and services related to repair and investment programs (upgrade, capital construction projects) of the companies within RusHydro Group.

The procurement items include goods usually purchased by energy companies (core equipment (boilers and turbines), transformers, switchgear cells, package transformer substations, isolation valves, control valves, line accessories, cable fittings, pipelines, steam pipelines and spare parts, cabling and wiring, electrical appliances, metal goods, insulators, heat insulators, etc.).

One of the Group’s most important strategic priorities in procurement is to ensure, in a timely and efficient manner, competitive awarding of contracts for fuel supplies (mainly coal and diesel fuel) to meet the needs of its generating facilities (GRES, CHPP, etc.). In 2018, the value of contracts awarded for fuel supplies amounted to RUB 83,042.59 mn (incl. VAT), or 30.7% of total value of contracts awarded under procurement procedures. The years 2016 through 2018 were characterized by high export prices for coal products, including in the Asia-Pacific market. As a result, the domestic market faced shortage of coal supply nudging up prices that steadily rose at a rate of up to 20% a year. During the period of low coal prices, RusHydro Group’s subsidiaries entered into a number of long-term contracts that expired in 2018. The price terms in these contracts were based on the tariffs then applicable. RusHydro Group intends to adjust the coal purchase price so that it equals the fair price reflecting the fuel cost component and use it as a base price in bidding for long-term coal supply contracts.

Impact of procurement activities on the regions of operations, communities and the environment

Being one of Russia’s largest purchasers of goods, products, services and raw materials, RusHydro Group is fully aware of its responsibility to the regions where it operates, communities and environment and relies on the Uniform Regulations on RusHydro Group’s Procurement Policy (approved by resolution No. 277 of RusHydro’s Board of Directors No. 277 dated October 4, 2018). According to the regulation, any design works (including pre-feasibility studies) for new hydropower and thermal power projects, their construction and modernization, any core equipment and technical specifications and the terms of contracts awarded under procurement procedures must be aligned with the customer’s approved internal sustainability by-laws to ensure:

- compliance with environmental requirements;
- protection of cultural heritage sites;
- industrial and occupational safety;
- protection of indigenous peoples and socially vulnerable groups;
- control over negative footprint on climate change and environment; and
- biodiversity conservation and restoration.

Procurement procedures based on tenders or requests for bids may include relevant sustainability criteria.

Procurement from small and medium-sized businesses (SMEs)

To facilitate competition and development of SMEs, RusHydro Group seeks to partner with small and medium-sized businesses as part of its procurement activities.

RusHydro launched a partnership program with small and medium-sized businesses (the “Partnership Program”) approved by RusHydro’s Order No. 568 dated July 16, 2014. The Partnership Program is developed in accordance with the Russian Ministry of Economic Development’s guidelines (letter No. 23941-EE/028i dated November 1, 2013).

The register of small and medium-sized businesses included in the Partnership Program is published on RusHydro’s official website in the Procurement section and is updated as necessary.

The list of goods, works and services purchased from SMEs can be found on the website of the Unified Information System for Procurement and on RusHydro’s website.

RusHydro’s target for contracts awarded to SMEs in 2018 was determined by Russian Government’s Resolution No. 1352 On Special Aspects of Participation of Small and Medium Enterprises in Procurement of Goods, Works and Services for Certain Types of Legal Entities dated December 11, 2014. As at December 31, 2018, the Group significantly exceeded the target.

RusHydro’s planned target for contracts to businesses including SMEs in 2019 is at least 18%, with at least 15% of its procurement to be delivered only through SMEs.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement through businesses including SMEs, % of annually awarded contracts</td>
<td>RusHydro</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>RusHydro Group</td>
<td>18</td>
</tr>
<tr>
<td>Procurement only through SMEs, % of annually awarded contracts</td>
<td>RusHydro</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>RusHydro Group</td>
<td>15</td>
</tr>
</tbody>
</table>

The Partnership Program is publicly available and published on RusHydro’s website: http://zakupki.rushydro.ru

The list of goods, works and services purchased from SMEs can be found on the website: http://zakupki.gov.ru
IMPORT SUBSTITUTION PROJECTS

- As part of the Comprehensive Modernization Program for RusHydro's generating facilities, the Company plans to increase supplies from domestic machinery producers given that, among other things, certain types of equipment and components will be produced in Russia.
- To increase supplies from local manufacturers in 2019, RusHydro reduced the share of imported equipment for its operations so that foreign goods, works and services are gradually phased out and replaced by local goods, works and services of equivalent performance and properties.
- As part of import substitution, in compliance with Federal Law No. 223-FZ On Procurement of Goods, Works and Services by Certain Types of Legal Entities dated July 18, 2011 as well as Russian Government’s Directive No. 1659p-P1383 dated March 15, 2016, the Company approved the Regulations on Registering Investment Projects Included in the List of RusHydro Group’s Investment Projects, which determine a set of standards, rules and requirements for selecting investment projects and obtaining approval to include the investment projects in the Register approved by the Government Commission on Import Substitution. The Standard Regulations for RusHydro’s Subsidiaries on Registering Investment Projects Included in the List of RusHydro Group’s Investment Projects were approved by RusHydro’s Management Board.
- In 2018, the share of imported equipment stood at 23%, which is in line with the Roadmap target capped at 23%.

Share of imported equipment, %

1.5 16 17 18 19

Target Actual

PROCUREMENT IMPROVEMENT IN 2019

- Optimization of procurement processes
- Further automation of the Group’s procurement processes, including the development of an automated analytical reporting system
- Development of the reference data system

HR AND SOCIAL POLICY

Our people

RusHydro’s HR policy is aimed at developing the potential of its employees and using it to pursue the strategic goals of RusHydro Group.

Employee overview

As at December 31, 2018, RusHydro Group employed 69,665 people (including RAO ES East Subgroup, facilities in Russia and abroad), down by 816 employees, or 1.2%, compared to the previous reporting period.

Most of RusHydro employees work full-time (98.6% for RusHydro Subgroup and 99.6% for RAO ES East Subgroup) and under permanent employment contracts (87.5% for RusHydro Subgroup and 97.2% for RAO ES East Subgroup).

Headcount by country and region as at December 31, 2018 (102-2), (102-4)

<table>
<thead>
<tr>
<th>Country, region</th>
<th>Headcount, people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td></td>
</tr>
<tr>
<td>Central Federal District</td>
<td>3,858</td>
</tr>
<tr>
<td>Southern Federal District</td>
<td>621</td>
</tr>
<tr>
<td>North-Western Federal District</td>
<td>919</td>
</tr>
<tr>
<td>Ural Federal District</td>
<td>311</td>
</tr>
<tr>
<td>Far Eastern Federal District</td>
<td>52,801</td>
</tr>
<tr>
<td>Siberian Federal District</td>
<td>3,439</td>
</tr>
<tr>
<td>Volga Federal District</td>
<td>3,557</td>
</tr>
<tr>
<td>North Caucasian Federal District</td>
<td>3,727</td>
</tr>
<tr>
<td>Foreign countries</td>
<td></td>
</tr>
<tr>
<td>Republic of Armenia</td>
<td>401</td>
</tr>
<tr>
<td>Republic of Tajikistan</td>
<td>31</td>
</tr>
</tbody>
</table>

The RusHydro Group headcount figures for 2016 and 2017 may be different from the previous annual reports due to changes in the reporting boundaries applied in 2018 report.
Workforce by gender, region, type of employment and kind of employment contract (102-4)

Gender distribution varies depending on the category of employees. In the management cohort, there are 3 times as many men as women; in the white-collar category - 1.7 times as many women as men; and in the blue-collar category - 4 times as many men as women, which reflects the specifics of RusHydro Group's operations.

26% of RusHydro Group's employees are aged 35 or younger. One of RusHydro Group's key tasks on the personnel management front is to attract young talent.

Seasonal employment (102-4)

RusHydro Group hires seasonal labor. In 2018, one seasonal worker was hired to control water flows from Lake Sevan, 27 workers were hired to manage children's recreation camp Energetik during the summer vacation, 62 workers were hired to manage children's recreation camp season, 27 workers were hired for the heating to control water flows from Lake Sevan, 16 workers were hired to restore ice Energetik during the summer vacation, 870 people were hired to restore ice Energetik during the winter vacation, 330 people were hired to restore ice Energetik during the summer vacation.

Recruitment

RusHydro Group recruits staff, including management, on a competitive basis. This approach enables the Company to recruit motivated people who meet the qualification requirements and have potential to grow professionally. Candidates of any gender, age and nationality are allowed to compete for vacancies, with professional skills being the main selection criterion.

In 2018, RusHydro Group created 1,253 new jobs as the scope of work increased and additional power capacities were put into operation.

Entry-level wages at RusHydro Group are equal to the statutory minimum monthly wage or up to 9.4 times higher than that depending on the region of presence, which means that RusHydro is a competitive and reliable employer.

Total number of employees starting or leaving employment at RusHydro Group in 2018, by age, gender and region, people (403-1)

<table>
<thead>
<tr>
<th>Region</th>
<th>&lt;25 years</th>
<th>25–34 years</th>
<th>35–44 years</th>
<th>45–54 years</th>
<th>&gt;55 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Federal District</td>
<td>45</td>
<td>19</td>
<td>98</td>
<td>72</td>
<td>91</td>
<td>79</td>
</tr>
<tr>
<td>Southern Federal District</td>
<td>14</td>
<td>1</td>
<td>11</td>
<td>13</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>North-Western Federal District</td>
<td>19</td>
<td>10</td>
<td>9</td>
<td>15</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Far Eastern Federal District</td>
<td>829</td>
<td>312</td>
<td>1,724</td>
<td>870</td>
<td>1,378</td>
<td>753</td>
</tr>
<tr>
<td>Siberian Federal District</td>
<td>38</td>
<td>29</td>
<td>89</td>
<td>74</td>
<td>86</td>
<td>82</td>
</tr>
<tr>
<td>Ural Federal District</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Volga Federal District</td>
<td>79</td>
<td>5</td>
<td>183</td>
<td>28</td>
<td>135</td>
<td>18</td>
</tr>
<tr>
<td>North Caucasian Federal District</td>
<td>160</td>
<td>3</td>
<td>269</td>
<td>23</td>
<td>179</td>
<td>33</td>
</tr>
<tr>
<td>Republic of Armenia</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Republic of Tajikistan</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1,187</td>
<td>379</td>
<td>2,396</td>
<td>1,087</td>
<td>1,899</td>
<td>981</td>
</tr>
</tbody>
</table>

Leaving employment

<table>
<thead>
<tr>
<th>Region</th>
<th>&lt;25 years</th>
<th>25–34 years</th>
<th>35–44 years</th>
<th>45–54 years</th>
<th>&gt;55 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Federal District</td>
<td>32</td>
<td>15</td>
<td>92</td>
<td>90</td>
<td>81</td>
<td>74</td>
</tr>
<tr>
<td>Southern Federal District</td>
<td>15</td>
<td>0</td>
<td>11</td>
<td>2</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>North-Western Federal District</td>
<td>9</td>
<td>1</td>
<td>12</td>
<td>15</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Far Eastern Federal District</td>
<td>456</td>
<td>180</td>
<td>1,477</td>
<td>713</td>
<td>1,274</td>
<td>824</td>
</tr>
<tr>
<td>Siberian Federal District</td>
<td>21</td>
<td>11</td>
<td>65</td>
<td>58</td>
<td>66</td>
<td>86</td>
</tr>
<tr>
<td>Ural Federal District</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Volga Federal District</td>
<td>63</td>
<td>1</td>
<td>166</td>
<td>19</td>
<td>140</td>
<td>22</td>
</tr>
<tr>
<td>North Caucasian Federal District</td>
<td>76</td>
<td>4</td>
<td>171</td>
<td>22</td>
<td>109</td>
<td>17</td>
</tr>
<tr>
<td>Republic of Armenia</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Republic of Tajikistan</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>678</td>
<td>212</td>
<td>2,006</td>
<td>923</td>
<td>1,701</td>
<td>1,035</td>
</tr>
</tbody>
</table>

Personnel assessment

The Corporate Hydropower University, a branch of RusHydro, assesses employee potential to join the Company's management talent pool using various professional and managerial competency appraisal methods, including the Assessment Center.

The Company's employees are also tested for adequacy to the job and have their professional, business and personal qualities and achievements assessed. Managers and white-collar employees, regardless of gender, are assessed once every three years. (404-2)
Further professional training

To achieve its strategic goals, RusHydro Group participates in the development and integration of occupational standards, develops employee professional and managerial competencies, implements career guidance programs for talented students. For this purpose, RusHydro Group implements advanced personnel development programs, builds a talent pool and trains employees.

The continuous training system serves to develop employee competencies to meet their current job requirements and to be promoted as part of the talent pool arrangement. The Company offers employees professional retraining opportunities, including in accordance with occupational standards.

RusHydro Group’s personnel training and development costs rose to RUB 339 mn in 2018 as the Company held the 8th Biennial All-Russia HPP Operations Staff Competition and the Open Corporate WorldSkills Competition in the reporting year and also increased spending on employee training under the education license issued to RusHydro’s Corporate Hydropower University in December 2017. Specifically, the Company increased training in December 2017. Specifically, the Company increased training hours, conducted out-of-office sessions, developed new training and methodological materials and updated the existing ones in accordance with occupational standards and requirements of the Ministry of Education and Science of the Russian Federation for advanced and occupational training.

Key areas of employee training:

- Statutory training under the requirements of the Federal Environmental, Industrial and Nuclear Supervision Service of Russia, the Federal Service for Labor and Employment, and other controlling authorities;

- Occupational training programs.

- Professional training programs for other RusHydro Group personnel, with 3,244 employees participating in 2018. 12,356 distance training courses were completed. Training sessions covered employees of RusHydro and its subsidiaries.

- Development programs, builds a talent pool and trains employees.

- Lifelong learning and training programs that support the continued employability of employees and assist them in managing career endings.

- The Corporate Hydropower University

In 2018, the Corporate Hydropower University developed 10 occupational retraining programs and 44 further professional training programs for operational staff in accordance with the education license issued in 2017. 153 employees were retrained in 5 programs, 190 employees received further professional training in 14 programs. Furthermore, the Corporate University conducted 51 corporate programs for other RusHydro Group personnel, with 3,244 employees participating in 2018. 12,356 distance training courses were completed. Training sessions covered employees of RusHydro and its subsidiaries.
In 2018, RusHydro held its Corporate WorldSkills Russia Juniors Competition in Electrical Installations at the Sayano-Shushensky training center of excellence of its Corporate Hydropower University. The competition was entered by 14 juniors up to 16 years old from orphanages in Rybinsk, Nevinnomyssk, Perm, Novosibirsk, Khabarovsk and Saryagansk under the patronage of RusHydro.


In October, RusHydro’s branch Volzhskaya HPP, the Volga Training Center of the Corporate Hydropower University and the Volga Branch of the Moscow Power Engineering Institute (as part of a trial demonstration exam) participated in the championship.

**Talent pool**

In order to ensure management succession, improve management appointment process and to incentivize employees to enhance their professional skills and knowledge for career development purposes, RusHydro Group has management talent pool building and development programs in place.

The programs are divided into two levels. The talent pool for any given position is a specially trained group of employees from the headquarters and branches, who combine strong leadership competencies and professional skills commensurate with corporate requirements for a particular managerial position.

In 2018, RusHydro Group arranged a number of other events for young employees in 2018, including participation in industry-wide competitions in innovation, the engineering training initiative Technological Leadership School run as part of the Youth Day at the St. Petersburg International Economic Forum and development of young people’s vision of technological growth of Russia’s energy sector in the context of global trends until 2030. The vision was elaborated in the format of a competition among young energy professionals. The research by RusHydro’s young specialists won the competition and was showcased to the Ministry of Energy during the Youth Day of the Russian Energy Week. In 2018, RusHydro’s young specialists participated in the 8th International Forum of Young Power Professionals and Industrialists called the Fast and the Furious 2018. It was for the first time that the vast majority of RusHydro’s branches and subsidiaries, including those from the Far East, were represented at the event. At the forum, the Young Employees’ Community started work under the guidance of RusHydro’s junior management and experts. The key goals of this professional community are as follows:

- to communicate RusHydro Group’s values to young people;
- to position RusHydro Group as an employer brand across its operational excellence, finance for non-finance managers, and veterans.
- to develop young employees’ competencies and skills and create opportunities for promotion at RusHydro Group.

Apart from offering training modules for talent pool candidates, RusHydro Group arranged a number of other events for young employees in 2018, including participation in industry-wide competitions in innovation, the engineering training initiative Technological Leadership School run as part of the Youth Day at the St. Petersburg International Economic Forum and development of young people’s vision of technological growth of Russia’s energy sector in the context of global trends until 2030. The vision was elaborated in the format of a competition among young energy professionals. The research by RusHydro’s young specialists won the competition and was showcased to the Ministry of Energy during the Youth Day of the Russian Energy Week. In 2018, RusHydro’s young specialists participated in the 8th International Forum of Young Power Professionals and Industrialists called the Fast and the Furious 2018. It was for the first time that the vast majority of RusHydro’s branches and subsidiaries, including those from the Far East, were represented at the event. At the forum, the Young Employees’ Community started work under the guidance of RusHydro’s junior management and experts. The key goals of this professional community are as follows:

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- to position RusHydro Group as an employer brand across its operational excellence, finance for non-finance managers, and veterans.
- to develop young employees’ competencies and skills and create opportunities for promotion at RusHydro Group.

The community operates, on a voluntary basis, to implement joint projects, share experience and practices, search for new, more efficient approaches and solutions to deliver on RusHydro Group’s strategic priorities. The community set the project key streams as follows: Technology Leadership, Professional Development, Health and Safety, Comfortable Environment in the Regions of Operation. For each stream, community participants designed a work plan for 2019 and determined mentors from among the managers and experts of RusHydro’s headquarters. The first project implemented by the community in 2018 was a virtual walking marathon across RusHydro Group’s sites called “Walking from the Far East to North Caucasus” aimed at promoting a healthy lifestyle and building communications among employees. 6,000 employees from 28 regions participated in the walking marathon. The project won the first prize in the Life Style nomination at the 9th International Competition for Internal Communication Projects INTERCOMM-2018.

**Personnel management system development plans for 2019**

In 2018, RusHydro Group established a Qualifications Assessment Center as a separate legal entity to assess employees for compliance with industry occupational standards. In September 2018, the Energy Sector Occupational Qualifications Council authorized the Qualifications Assessment Center to conduct independent assessments of professional qualifications under the occupational standards for the electrical and heating power sector.

The assessments will be conducted starting from 2019, in line with statutory regulations, as an occupational examination, which includes a theory test and a practical section to check skills and competencies.

The tests will be run in Moscow as well as in the Volga Training Center of the Corporate Hydropower University, the Artyom Training Centers in the Far East, and the Dolgovenko Personnel Training Center of DVGK’s branch Khabarovsk Generation. The examination board will include RusHydro production experts, who contributed to the development of occupational standards and assessment materials.

In 2019, RusHydro Group, at its Sakhalinfenergo Training Center, will hold the 2nd corporate competition for operations staff at cross-connection thermal power plants. Teams from DVGK, Kamchatkenergo, Magadanenergo, Sakhalinfenergo and Chukotenergo will take part in the competition.

Other plans for 2019 include:

- the 1st Corporate Engineering Case Championship of Innovation and Work Improvement Proposals called Ratsenergy;
- the 2nd Corporate Championship WorldSkills Russia Juniors in Electrical Installations;
- the Industry (Corporate) Championship for protective relaying and automation of hydropower plants and pumped storage power plants, arranged to WorldSkills standards; and
- a conference of RusHydro Group’s young talent community at the International Innovation Forum of Industrialists and Power Professionals called the Fast and the Furious 2019.
Social policy

In order to implement RusHydro’s socially responsible position, the Board of Directors approved the Company’s Social Policy in 2013. The document established the key principles, goals and objectives for RusHydro Group’s social development across the regions of operation.

Objectives and results of the social policy

Objectives of the social policy:
- furthering the Company’s socially responsible agenda;
- promoting shared social responsibility and social partnership practices;
- making RusHydro Group more attractive as an employer to recruit and retain the best talent;
- maximizing employee commitment to RusHydro’s goals and principles;
- improving occupational relations;
- promoting shared social responsibility;
- creating an institutional environment.

Tasks of the social policy:
- creating an institutional environment for attracting and retaining young talent;
- following international standards and best practices in the field of human rights, labor relations, environmental protection, anti-corruption initiatives and stakeholder relations. The Company relies on the Guidance on Social Responsibility (ISO 26000) and the universal principles enshrined in the UNGC Guide to Corporate Sustainability in the field of human rights, labor relations, environmental protection and anti-corruption initiatives, as well as the Social Charter of the Russian Business and the Tariff Agreement for the Electrical Power Industry of the Russian Federation (2013);
- the “Individual” option (employees finance their pension savings); the “Supporting” option (the Company accumulates pension contributions on registered pension accounts of employees who, as a result of the reform of the state pension system, do not receive or have a limited opportunity to form the funded part of the work pension (for employees born before 1966); the “Veterans” option (the Company accumulates pension savings on the pension accounts of its former employees as a supplementary pension for retired employees).

Similar programs are in place at several subsidiaries, including Hydroremont – VCC, Transport Company RusHydro, Kolymaenergo, DOK, Far Eastern distribution company (DRSK), Far Eastern energy company (DEK), Kamchatkinenergo, etc.
At the meeting, memorandum No. 56 pt/2 was signed with a view to developing social partnerships at all levels, improving a social dialogue between authorized representatives of employers and employees at RAO ES East Subgroup, as well as maintaining the existing social benefits.

All of RusHydro Group’s generation branches and 40 subsidiaries have collective bargaining agreements in place. In 2018, 96% of the Group’s employees were covered by collective bargaining agreements.

The collective bargaining agreements signed at RusHydro Group regulate the social and labor relations taking into account the interests of employees and the employer. [204-2]

RusHydro and its 12 subsidiaries are members of the All-Russian Industry Association of Employers of the Power Sector “ERA of Russia”, while another 3 subsidiaries have joined the Industry Tariff Agreement for the Electrical Power Industry of the Russian Federation. The Industry Tariff Agreement provides a single standard for regulating social and labor relations in the industry and sets a minimum level of guarantees for employees. This standard significantly facilitates the dialogue in social partnerships at the levels of industry companies and the Group, enabling RusHydro to compare and assess the level of guarantees provided to employees.

All companies that are “ERA of Russia” members comply with the key provisions of the Industry Tariff Agreement pertaining to the amount and frequency of indexation of the minimum monthly rate of pay, additional benefits and guarantees such as one-off payments made prior to a paid leave, financial assistance provided in the face of certain events (marriage, childbirth, death of close relatives), one-off payments to retiring employees, compensation to families in cases of work-related fatalities and deaths caused by common diseases or home accidents, as well as other benefits provided for by the Industry Tariff Agreement if the company is financially able to make the payments (50% discount of the regular charge for electricity and heat, compensation of childcare expenses, monthly compensation payments to employees on childcare leave, etc.). Notably, RusHydro provides employee benefits and guarantees that are higher than those set forth in the Industry Tariff Agreement in terms of both scope and amounts.

Pursuant to the Labor Code of the Russian Federation, specifically article 75 concerning changes of control and restructuring, employees must be notified in simple written form within at least two months from the date of such material changes in an employment contract. In collective bargaining agreements, Section 4 “Employment” also makes reference to the Industry Tariff Agreement, which reflects duties of employers and trade unions in the event of material changes in employment contracts. [400-1]

Charity programs and volunteering

Charity programs

RusHydro pursues charitable activities in accordance with the Company’s Charity and Sponsorship Policy approved by its Board of Directors (Minutes No. 280 of December 7, 2018).

The main objective of RusHydro’s charity programs is to set the stage for sustainable development in the Company’s regions of operation, foster a favorable social environment and help unlock Russia’s spiritual, scientific, technical and intellectual potential.

RusHydro’s charitable priorities include:

- education;
- environment;
- healthcare;
- sports;
- culture;
- support of social institutions and organizations;
- initiatives promoting the social and economic development of the Russian regions;
- support of charitable foundations and non-profit organizations;
- improving the living standards of low-income households and people in need.

On average, the Company spends more than 50% of the total amount of employee benefits paid to employees, which amounts to more than one-third of the total amount of employee benefits paid to employees. In particular, RusHydro pays close attention to the problems of children without parental care and kids with special needs. In 2018, 18 orphanages and asylums and 9 rehabilitation centers for children and teenagers became eligible for financial support. The Company’s charitable assistance helped upgrade and refurbish the institutions’ facilities, prepare orphan undergraduates for adult life, furnish playgrounds for children with special needs, purchase special educational equipment, set up rehabilitation courses, and organize educational excursions and sports competitions.

Education

Support for educational institutions translates itself into technical upgrade initiatives and implementation of educational projects. In 2018, RusHydro provided financial support to 18 kindergartens, 28 secondary schools, 10 music schools and community centers, 13 centers of additional education and leisure for children and youth, and five universities.

RusHydro staged the 10th edition of the Energy for Development contest for undergraduates and postgraduates of technical universities, aiming to put in place a long-term framework for consistent professional training in the energy sector and facilitate industry-specific education. Over the years, some 7,000 undergraduates and postgraduates submitted their applications to take part in the contest, with several dozen winners opting to pursue a career in the energy sector after the competition.

Environment

RusHydro’s environmental initiatives include OBEREGAI, an environmental program designed to clean up the banks of local water bodies, and a project offering students a wide choice of environmental sessions, festivals, contests, excursions focusing on local history and culture, field schools and classes in the school’s forest and nature reserve facilities during their vacations. The Company provides support to specially protected natural areas (nature reserves, protected areas and national parks) at both the regional and national levels. As part of the Ecological Paths project, an additional tourist route was laid out in the Prebruneys National Park, with the number of nature trails created in 15 regions of the Company’s operations reaching 23.

Healthcare

Every year, in the run-up to the Energy Worker’s Day, RusHydro holds an Energy Born charity event, aiming to provide maternity hospitals, perinatal care centers and maternity wards from across the Company’s footprint with state-of-the-art medical equipment. In 2018, as part of this initiative, the Group purchased cardiocographs / fetal monitors, neonatal intensive care units, air recirculation and irradiation systems, electrocoagulators and pulse oximeters for 14 healthcare institutions.

The total number of medical organizations benefiting from financial support in 2018 reached 21.

Sports

A total of 26 sports schools and football, basketball, hockey, tennis, chess, water sports and martial arts clubs from the Company’s regions of operation became eligible for charitable assistance, with sports equipment and accessories supplied with the support of RusHydro. Moreover, young athletes from the patronized sports schools now have an opportunity to participate in European and international competitions to vie for gold and silver medals.

Financial support was also provided to the Russian Whitewater Slalom Federation, Russian Union of Martial Arts, Russian Judo Federation, Karachayev-Cherkessian Regional Sports Federation of Kyukushin, and Yenisei-STM Rugby Club.

Support of social institutions and organizations

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Cultural projects and volunteering

Cultural projects

For several years now, cooperation with the Russian Geographical Society has been one of RusHydro’s major projects in the realm of culture. Last year, the Company provided financial assistance for the Society to put in place a grant fund designed to encourage research on natural disasters and rare animal species, while also supporting the organization’s publishing activities and environmental and geographical expeditions.

Financing was also allocated to preserve the cultural and historical heritage by upgrading a wide range of cultural institutions, including museums, community centers, and libraries. The financial assistance provided by the Company made it possible to stage a large number of creative festivals, contests and exhibitions and to promote book publishing.

RusHydro’s environmental initiatives include OBEREGAI, an environmental program designed to clean up the banks of local water bodies, and a project offering students a wide choice of environmental sessions, festivals, contests, excursions focusing on local history and culture, field schools and classes in the school’s forest and nature reserve facilities during their vacations. The Company provides support to specially protected natural areas (nature reserves, protected areas and national parks) at both the regional and national levels. As part of the Ecological Paths project, an additional tourist route was laid out in the Prebruneys National Park, with the number of nature trails created in 15 regions of the Company’s operations reaching 23.

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Financial support was also provided to the Russian Whitewater Slalom Federation, Russian Union of Martial Arts, Russian Judo Federation, Karachayev-Cherkessian Regional Sports Federation of Kyukushin, and Yenisei-STM Rugby Club.
Support of charitable foundations and non-profit organizations

Funds were allocated to support 35 charitable foundations and non-profit organizations at the regional and national levels. This financing helped implement socially significant charitable projects in the Company’s regions of operation, including the Far East, focusing on education, environment, healthcare, sports, culture, support for low-income families and people in need, and initiatives promoting the social and economic development of the Russian regions.

In 2018, charitable foundations benefiting from the Company’s financial assistance included the Vera Hospice Charity Fund, Center for Humanitarian Programs, Russian Children’s Foundation, Live Now Charity Foundation, and Illustrated Books for Little Blind Children, a regional charitable foundation. The financial allocations were used to lend a helping hand to low-income households and distressed families.

Each year, RusHydro’s Board of Directors approves the Company’s Charity and Sponsorship Program. In 2018, the total amount of allocations under the charitable programs stood at RUB 1,240.5 mn, with funds used to support charity and socially significant projects and programs in RusHydro Group’s regions of operation.

In the Far Eastern Federal District, the social projects of critical importance for the macroregion and its residents are supported by the Far East, focusing on education, environment, healthcare, sports, culture, support for low-income families and people in need, and initiatives promoting the social and economic development of the Russian regions. In 2018, charitable foundations benefiting from the Company’s financial assistance included the Vera Hospice Charity Fund, Center for Humanitarian Programs, Russian Children’s Foundation, Live Now Charity Foundation, and Illustrated Books for Little Blind Children, a regional charitable foundation. The financial allocations were used to lend a helping hand to low-income households and distressed families.

Programs to promote skills and knowledge in the professional community or across the region

As part of RusHydro’s advanced personnel development program – From New School to Workplace, an extensive student and undergraduate engagement exercise has been launched across the Group’s footprint. This effort seeks to raise awareness about the importance of engineering and blue-collar jobs as a prerequisite for the development of the energy sector in the Company’s regions of operation, the central element of RusHydro’s school-based talent pooling exercise comes in the shape of career-oriented educational programs (energy classes) launched in nine regions across the Company’s footprint. In 2018, 670 school students of the ninth to eleventh grades completed training under such programs. 2018 also saw the launch of optional classes in Theory of Inventive Problem Solving and extra-curriculum engineering activities for more than 400 students from the Company’s technical creativity centers (technical workshops).

Each year, the Company holds Energy for Education, an industry-specific school contest which has attracted over 5,000 students since its kick-off. In 2018, 680 schoolchildren submitted applications to take part in the online competition, with 20 winners admitted to the final stage of the nationwide Energy Sector Hope school contest.

The brightest participants of career guidance projects become eligible to join Energy Summer School, a corporate R&D camp run by RusHydro on an annual basis. In 2018, the summer school was hosted by Novosibirskaya HPP, the event was attended by 32 schoolchildren from 14 Russian regions (including those enlisted in RusHydro’s energy classes) who prepared and presented six team projects focusing on synergies between Novosibirskaya HPP and the nearby megapolis.

In 2018, the Company became a partner of discipline-specific and project-based sessions in the Russian Children’s Education Centers (Sirius, Ocean, Smena, Orlyonok) as part of RusHydro’s career guidance program, with 462 high school students attending the events.

In 2018, RusHydro became a theme-based partner of ProeKTOriYa, a national career guidance forum, which was attended by students of energy classes from Rybinsk and their mentor. As part of the forum, experts from the Corporate University staged a hydropower case solving competition with online contributions from the employees of Saratovskaya HPP and the laboratory of Moscow Power Engineering Institute.

The key 2018 event in terms of collaboration with professional educational institutions was RusHydro-sponsored opening of the Institute of Hydropower and Renewable Energy Sources (part of Moscow Power Engineering Institute) designed as a single center for education and training of engineers specializing in hydropower and renewables. The training center leverages the capacities of the departments of Hydropower and Renewables, Hydromechanics and Hydraulic Machines, and Innovative Technogenic Safety Solutions, which are responsible for training bachelors, masters and postgraduates in the key areas of the Company’s business. The Institute established a united center for education and training of engineers in hydropower and renewables.

The training center was based on the following departments: «Hydropower and Renewables», «Hydromechanics and Hydraulic Machines», «Innovative Technologies of Technogenic Safety», which train bachelors, masters and postgraduates in the core specialties of RusHydro.

Volunteering initiatives

RusHydro Group promotes corporate volunteering, encouraging individual and team-based involvement of its employees in socially important projects.

RusHydro’s corporate volunteers take an active part in 08REGA, an environmental program designed to clean up the banks of rivers, reservoirs and lakes in the Group’s regions of operation.

RusHydro employees also participate in blood donation campaigns organized by the Company jointly with the Blood Service, with up to 75% of volunteers foregoing their compensation for charitable purposes.

 Awards

RusHydro has received numerous corporate awards confirming the Company’s commitment to raising awareness about energy sector jobs and providing training opportunities to students and undergraduates across the regions of its operation:

- The Company won a first grade award in the Technology Transfer nomination at Enabling Our Future, Russia’s fifth nationwide contest for best employer practices in human capital development.
- At Graduate Awards 2018, RusHydro came in the third place in the nomination for the Best Schoolchildren Engagement Program with its project focusing on the implementation of career guidance initiatives at the Information Center for On-site Training in Cheryomushki.
- RusHydro won the 2018 Leaders of Russian Business: Dynamics and Responsibility contest sponsored by the Russian Union of Industrialists and Entrepreneurs, receiving an award for its contribution to the social development of the Company’s regions of operation. The key evaluation criteria included contributions to solving economic and social problems, efficiency of proposed projects and initiatives, and replicability of gained experiences outside the company.
- Young Energy, a program aiming to provide social and professional guidance for children from orphanages, won:
  - the first place and the Grand Prix in the nomination for Collaboration Synergies of the Enabling Our Future contest held as part of the Moscow International Education Fair (MIFF 2018);
  - second place in the nomination for the Best Program (Project) Promoting Volunteering in Russia at the awards ceremony of the Leaders of Corporate Charity in Russia 2018 initiative;
  - came in the second place at Champions of Goodness, Russia’s first nationwide corporate volunteering contest; and
  - made it to Top 20 in the Social Mentoring nomination in the first edition of Russia’s Best Mentoring Practices competition.
The Company holds charity fairs, with proceeds donated to the charitable foundations’ treatment, rehabilitation, training and development programs. Volunteers are also involved in fundraising and drives for people in need. In 2018, as part of the Suitecase of Goodness campaign, the Company’s volunteers collected over 2,000 toys for kids undergoing treatment in children’s haematology centers and oncology hospitals. Over one hundred gifts were collected before the New Year to cater for the basic needs of the elderly people placed in care homes or under custody of the Vera Miloserdia Foundation.

RusHydro’s employees arrange tours around the Group’s facilities. In 2018, more than 4,000 tours were organized for students in an attempt to stir interest in engineering and energy sector professions among the youth.

Annually, RusHydro’s volunteers come to schools from across the Company’s footprint to give over 10,000 schoolchildren lessons about energy saving technologies and energy security.

RusHydro Group’s corporate volunteers stage festive events (as part of the Brightest Christmas Tree initiative) and collect stationery (as part of the Get Ready for School campaign). Children from distressed families and kids placed under the custody of socially responsible charitable foundations, orphanages and boarding schools.

On occasion of the Energy Worker’s Day and other holidays, corporate volunteers come to visit retirees at their homes and organize retiree meetings enabling energy sector workers of different generations to share their experiences. On such days, volunteers from RusHydro’s North Caucasus branches clean up areas around monuments to Russia’s defenders and organize excursions to the Caucasus Mountains to honor the heroic deed of soldiers who died in defense of the North Caucasus region during World War II.

In retail companies, RusHydro’s corporate volunteers teach pensioners how to use their personal online accounts and give digital literacy classes.

In 2018, RusHydro Group mobilized its volunteers to streamline the implementation of Young Energy, a program aiming to provide social and professional guidance for children from orphanages, the volunteers helped children choose a career path, prepare for exams and studies at specialized technical schools, and seek employment with RusHydro or other companies, the program covering nine regions of the Company’s operations has been in place since 2013. RusHydro’s volunteers are the main driver behind the initiative. In 2018, 120 volunteers took part in the Program.

Volunteers work with children on an ongoing basis, having encouraged more than 55 students to take specialized training at technical schools.

Since 2015, the Company has been using a training program for participants of the WorldSkills Russia Juniors championship as one of the main career guidance and professional development tools for orphans and children without parental care.

RusHydro is the only company with children from orphanages in its teams.

In 2018, volunteers organized a large number of socialization and career guidance events for children, including: preparation for the WorldSkills Junior championships; visits to the Company’s facilities; lectures and workshops on technology and energy (for example, Denis Ivashkin, Head of Energy Market Support Novosibirskaya HPP (RusHydro’s branch), delivered a lecture on renewables in our life for children from the Novosibirsk Orphanage);

creative workshops (decoupage, scrapbooking, drawing contests, etc.);

clean-up days;

energy efficiency and financial literacy lessons, rundown on the Constitution of the Russian Federation, etc.;

festivals held on occasion of the New Year, Defender of the Fatherland Day, International Women’s Day, Maslenitsa, school graduation, Knowledge Day, Energy Worker’s Day, etc.;

visits to cultural events, theatres, exhibitions, etc. (for example, on February 2, 2019, volunteers from Volzhskaya HPP (RusHydro’s branch) took children from the Volzhsky Orphanage on a trip to the Panorama Museum of the Stalingrad Battle (Volgograd) to commemorate the anniversary of the Battle of Stalingrad);

sports events and contests (football and volleyball competitions, school sports days, rafting excursions, health days, etc.).

The Company’s volunteers organized a training session for children from Latschorka Orphanage (Republic of Khakassia) in an attempt to facilitate their transition to adult life after they leave school. Moreover, additional training in maths, Russian and physics is available to orphans and children without parental care as part of the preparation for the high school graduation exams and entrance exams at technical schools.

A team of volunteers led by Natalya Gorodeyeva, an HR specialist at Volzhskaya HPP (RusHydro’s branch), helped Denis Tyagyanov, a student under the custody of the Volzhsky Orphanage, to successfully pass entrance exams at the Volzhsky branch of Moscow Power Engineering Institute.

Environmental friendliness and awareness is a mandatory part of policy for any socially responsible business. Ongoing modernization initiatives together with energy conservation and higher energy efficiency, advancement of renewable energy and innovative development are set to reduce negative environmental footprint and increase the Company’s shareholder value.

RusHydro Group is the largest Russian energy holding and a leader in generating renewable energy. RusHydro Group’s operations span more than 90% of Russia, making it a major user of national water resources and the largest electricity and heat supplier in the Far East.

Environmental policy

Environmental impact management

RusHydro Group adheres to environmental protection and sustainable use of natural resources while observing the approved Environmental Policy, which is based on Russia’s national policy for environmentally sustainable development and safety, the Constitution of the Russian Federation, federal laws and regulations, and international treaties of the Russian Federation governing the same.

RusHydro Group also takes into account global standards for environmental management and international best practices applicable to energy projects.

While planning and carrying out its operations, the Group abides by the precautionary approach adopted by the UN Conference on Environment and Development in 1992.1

The integration of RusHydro and RAO ES East had an impact on the Group’s operations, changing the perimeter of its operations and causing the Group to revise its Environmental Policy, which now addresses today’s challenges and trends in environmental protection while taking into account the specific operating environment of RusHydro’s hydropower and heat assets.

The updated Environmental Policy sets out KPI seeking to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions, prevent species elimination as a result of operating activities, additionally train staff in environmental protection, etc.

The plan by 2025 is to increase the installed capacity of low-carbon generation by 632.3 MW and reduce greenhouse gas emissions by more than 6% as compared to 2015. The intensity of CO2 emissions is set to decrease 7.7% in the electricity generation segment and 6.4% in the heat production segment.

The restated Environmental Policy addresses today’s challenges and trends in environmental protection.

The document was prepared on the basis of federal government authorities’ proposals, specifically those by the Ministry of Energy, Ministry of Economic Development and the Ministry of Natural Resources and Environment, the Ministry of Environmental Protection and Natural Resources of Russia, the Ministry of Education and Science, and the Ministry of Agriculture.

1 “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” (The Convention on Environmental and Development, 1992).

ENVIRONMENTAL PROTECTION

Environmental impact management

RusHydro Group

RusHydro’s Executive Office

Member of the Management Board, First Deputy General Director – Chief Engineer

Department of Development and Standardization of Production Processes

Environmental protection specialists of the Group’s branches and subsidiaries
Resources and the Environment of the Russian Federation as well as the UN Sustainable Development Goals. The Environmental Policy won recognition during public hearings attended by representatives of the World Wildlife Fund (WWF), Russian Union of Industrialists and Entrepreneurs, Moscow State University, RUSAL, EuroSibEnergo, Rosseti, etc.

It is worth noting that the Environmental Policy is binding on all companies within RusHydro Group as well as entities that collaborate with the Group on contractual terms.

### Key environmental protection initiatives in 2018 as part of the Rehabilitation and Modernization Program

<table>
<thead>
<tr>
<th>Branch/subsidiary</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volotskaya HPP (RusHydro's branch)</td>
<td>∙ Replacement of ash and slag disposal facilities; ∙ Installation of water meters (part of hydroelectric unit upgrade) (Kolymskaya HPP); ∙ Downstream water management at earth dam No. 3</td>
</tr>
<tr>
<td>Saratovskaya HPP (RusHydro's branch)</td>
<td>∙ Current repairs of concrete and earth slopes of the left-bank dam and channel dam; ∙ Replacement and rehabilitation of overflow dam bars and construction of a transfer platform</td>
</tr>
<tr>
<td>Kamskaya HPP (RusHydro's branch)</td>
<td>∙ Current repairs of overflow dam sealing off concrete surfaces; ∙ Repair of drainage systems</td>
</tr>
<tr>
<td>Volzhskaya HPP (RusHydro's branch)</td>
<td>∙ Sealing off oil-filled runners of turbines; ∙ Landscaping of upstream and downstream penstocks</td>
</tr>
<tr>
<td>Chelobitskaya HPP (RusHydro's branch)</td>
<td>∙ Rehabilitation of drainage water treatment facilities adjacent to the HPP building and storm and thaw water treatment facilities adjacent to the logistics base</td>
</tr>
<tr>
<td>Kolymskaya HPP</td>
<td>∙ Installation of water meters (part of hydroelectric unit upgrade) (Kolymskaya HPP); ∙ Downstream water management at earth dam No. 3</td>
</tr>
<tr>
<td>Boguchanskaya HPP</td>
<td>∙ Search for latent flaws at ERDG-600 8th-biological sewage treatment plant of KOS-240 treatment facilities complex at Boguchanskaya HPP; ∙ Fishery protection (ongoing monitoring); ∙ Inspection to identify causes for poor performance of the waste water treatment process against discharge limits for oil-contaminated water (20 l)</td>
</tr>
<tr>
<td>JSC DRSK</td>
<td>∙ Replacement of oil-filled electrical equipment with vacuum equipment</td>
</tr>
<tr>
<td>PJSC Magadanenergo</td>
<td>∙ Repair of fly-ash collectors at Arakalinskaya GRES boilers; ∙ Maintenance of oil separators at Magadanerskaya CHPP</td>
</tr>
<tr>
<td>PJSC Mobile Energy</td>
<td>∙ Introduction of gas monitors</td>
</tr>
<tr>
<td>PJSC Kamchatskenergo</td>
<td>∙ Repair and maintenance of waste water treatment facilities at Kamchatskaya CHPP-1 and Kamchatskaya CHPP-2, Central Power Grids, Yuzhno-Sakhalinskaya CHPP-1</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>∙ Repair, tests and adjustments at boilers (including dust collecting equipment), gas turbine units and diesel power plant of Yuzhno-Sakhalinskaya CHPP-1; ∙ Instrumentation to monitor pollutant emissions into the air; ∙ Replacement of oil-filled electrical equipment with vacuum or SF6 gas equipment, which contains no oil, or with equipment lower oil content at Yuzhno-Sakhalinskaya CHPP-1; ∙ Current repairs of gas purification equipment at boilers of Yuzhno-Sakhalinskaya CHPP-1; ∙ Replacement of straight runs of ash and slag pipe at Yuzhno-Sakhalinskaya CHPP-1; ∙ Repair of clarified water treatment facilities and pump station at Blagoveshchenskaya CHPP; ∙ Construction of a waste water treatment station at Khabarovskaya CHPP-2 using innovative technologies of biochemical purification and disinfection</td>
</tr>
<tr>
<td>JSC Chukotenergo</td>
<td>∙ Tests on dust collecting equipment and measurements of gaseous effluents from boilers of Anadyr CHPP and Chaunskaya CHPP; ∙ Procurement of gas analyzers and components for Anadyr CHPP</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>∙ Flue gas scrubbing from smoke and dust using special equipment (cyclones); ∙ Rehabilitation of diesel power plant No. 23 and replacement of diesel generator in Ust-Khamchatka</td>
</tr>
<tr>
<td>PJSC Yakutskenergo</td>
<td>∙ Replacement and repair of boiler burners at Yakutskaya GRES; ∙ Repair of mechanical-draft tower at Yakutskaya GRES; ∙ Replacement of oil-filled circuit breakers with vacuum ones at Yakutskaya GRES</td>
</tr>
<tr>
<td>JSC Sakhalinenergo</td>
<td>∙ Current repairs to prevent air inflow at uniflow cyclone and multi-cyclone (boilers Nos. 4 and 5) of Deputatskiy CHPP; ∙ Commissioning equipment for disposal of hazard classes 1-4 waste (Titku, Olekminsk, Batagay); ∙ Replacement of oil-filled circuit breakers with vacuum ones at Blagoveshchenskaya CHPP; ∙ Rehabilitation of ash and slag pipe for recycling water supply at Deputatskiy CHPP</td>
</tr>
<tr>
<td>JSC LCM</td>
<td>∙ Water spraying (dust suppression) of roads, coal faces and open pit crushing and screening area; ∙ Repair of oil separators at vehicle handling facilities in the mining area</td>
</tr>
</tbody>
</table>

### Key environmental protection initiatives in 2018 as part of the Rehabilitation and Modernization Program

RusHydro approved the implementation Program for the Environmental Policy. As part of the Rehabilitation and Modernization Program, RusHydro procures to upgrade and replace hydropower units and repair HPP turbines, including to prevent environmental contamination in the course of its operations. Bank protection efforts are ongoing to maintain water conservation zones in good repair. RusHydro Group seeks to replace oil-filled electrical equipment with vacuum or SF6 gas, which contains no oil, or with that with lower oil content. RusHydro Group procures to upgrade TPP boilers to feed on natural gas, which helps reduce pollutant emissions into the air and enhance the efficiency of gas purification and dust collecting equipment.

The Company also employs other initiatives to reduce its negative environmental footprint, including:

- construction of industrial waste landfill;
- rehabilitation of storm drains and waste water treatment facilities;
- collection of floating rubbish and transfer to waste disposal facilities;
- landscaping and planting of greenery;
- repair of ash and slag disposal facilities.

2018 SAW NO INCIDENTS OR ACCIDENTS CAUSING ENVIRONMENTAL DAMAGE WITHIN RUSHYDRO GROUP

Technical regulations for environmental safety

RusHydro adheres to a number of technical standards providing for environmental safety.

To assess the impact on environment and ensure industrial control, RusHydro introduced corporate standards such as Hydroelectric Power Plants: Environmental Protection, Environmental Impact Assessment. Guidelines and Hydroelectric Power Plants: Industrial Environmental Control. Standards and Requirements. National Standard GOST R 58 224-2018 Hydroelectric Power Plants, Loss Allowance for Turbine Oil While in Operation, Method of Calculation for Turbine Oil Losses While in Operation applies to both the Company’s day-to-day management and state supervision.
Environmental impact assessment

RusHydro ensures environmental safety at all stages of the life cycle of its industrial facilities. Prior to starting a new project or modifying the existing facilities (at the project initiation and design stages), the Company procures to assess their impact on environment. In 2018, there was no need to hold public hearings on environmental impact assessment for projects being designed or constructed.

Assessment and controls over environmental impact at all stages of the project life cycle

<table>
<thead>
<tr>
<th>Stage</th>
<th>Controls over environmental impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning (pre-project stage)</td>
<td>➤ R&amp;D with a focus on environment ➤ Preliminary environmental impact assessment for new construction and rehabilitation planning</td>
</tr>
<tr>
<td>Design</td>
<td>➤ Environmental impact assessment: assessment of the facility impact on environment in order to decide whether construction or rehabilitation is feasible ➤ Designing initiatives to ensure the required level of environmental safety</td>
</tr>
<tr>
<td>Construction</td>
<td>➤ Implementation and follow-up on the initiatives provided for by the project and aimed at ensuring environmental safety ➤ Compliance with environmental laws during construction and installation</td>
</tr>
<tr>
<td>Operation</td>
<td>➤ Industrial environmental control: initiatives preventing any deviation from the given level of environmental safety ➤ Voluntary initiatives to preserve biodiversity and improve environmental awareness among employees and communities</td>
</tr>
</tbody>
</table>

Ensuring compliance with environmental laws

It is mandatory for the Company to develop draft standards applicable during the construction and operation of its facilities which establish permissible pollutant emission and discharge limits, waste generation and disposal limits as well as design documentation related to environmental protection, including initiatives to reduce negative environmental footprint and preserve biodiversity. These documents are to be approved by the respective government agencies in charge of environmental protection, including:

➤ Ministry of Natural Resources and the Environment of the Russian Federation;
➤ Federal Service for Supervision over Natural Resources Management;
➤ Federal Agency for Water Resources;
➤ Federal Fishery Agency;
➤ Federal Service for Supervision over Consumer Rights Protection and Human Welfare.

The Company relies on the documents so approved to carry on its business in compliance with environmental protection standards.

Scientific and Technical Council

The Company has a permanent expert collective body, the Scientific and Technical Council (STC), which provides for a unified system of technical expertise ensuring that R&D solutions, projects and programs are examined for compliance with the Technical Policy and applicable technical regulations.

To ensure environmental safety while developing new technical solutions, the Company established the STC’s task force on water reservoirs and environmental protection. It includes representatives of R&D institutions, the Chair for General Ecology of the Department of Biology at the Moscow State University, the Information Fund for Water Resources of the Federal Agency for Water Resources, and the Papain Institute of Biology of Inland Waters (Russian Academy of Sciences).

Investments in environmental protection

Total environmental protection expenses and investments of RusHydro Group in 2016-2018, RUB mn

<table>
<thead>
<tr>
<th>Year</th>
<th>Total annual costs</th>
<th>Environmental protection costs</th>
<th>Costs for capital repair of environmental protection fixed assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,694.3</td>
<td>246.4</td>
<td>151.3</td>
</tr>
<tr>
<td>2017</td>
<td>1,693.5</td>
<td>243.7</td>
<td>151.3</td>
</tr>
<tr>
<td>2018</td>
<td>1,694.2</td>
<td>246.4</td>
<td>151.3</td>
</tr>
</tbody>
</table>

Cooperation in environmental protection

RusHydro Group actively cooperates with international organizations on matters of environment protection and conservation of biological diversity; the Company supports industry-specific and international initiatives to reduce the man-made load on the environment and strives to adopt best practices for the successful implementation of its environmental projects.

Prior to March 2018, RusHydro had been a partner of Mainstreaming Biodiversity Conservation into Russia’s Energy Sector Policies and Operations project run by the United Nations Development Program, the Global Environmental Facility and the Ministry of Natural Resources and the Environment of the Russian Federation (the “UNDP Project”). The Project was implemented in Russia between 2012 and 2018. The Project’s objectives were as follows:

➤ demonstration and introduction of international best practices in the field of biodiversity conservation in Russia’s energy sector;
improving biodiversity status in industrialized regions of Russia;
• assistance in the set-up of a monitoring system for biodiversity status and testing of environmental technologies in oil producing, coal mining, and hydropower production; and
• promoting the adoption of policies and guidelines on biodiversity conservation in the energy sector.

Within the UNDP Project, RusHydro was focusing on:
• biodiversity conservation;
• sustainable development of hydropower; and
• development of guidelines on biodiversity conservation in the hydropower sector.

In 2018, RusHydro continued its membership in international industry associations such as the Centre for Energy Advancement through Technological Innovation (CEATI), the International Hydropower Association (IHA) and the International Commission on Large Dams (ICOLD). Membership in these organizations enables the Company to interact with the world community on the safe, innovative and sustainable development of hydropower. [20.12]

To promote the principles of sustainable development in Russia, the Company contributes to the implementation of the Hydropower Sustainability Assessment Protocol (HSAP) as a statutory instrument.

Cooperation to combat climate change

In late 2015, RusHydro supported an initiative to unite the efforts in Russia to reduce the impact on the environment and prevent climate change, signing the Statement of the Russian Business on the Negotiation Process and Adoption of a New Climate Agreement at the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

The 24th session of the Conference of the Parties to the UNFCCC was held on December, 2018 in Katowice (Poland), whereby Timur Khaziakhmetov, Director of RusHydro’s Department of Development and Standardization of Production Processes, presented his report “RusHydro Group’s Low-Carbon Development at the Russian Investments for a Transition to the Low GHG Emission Development round table and spoke on RusHydro’s sustainable development policy at the Day of Sustainable Energy. Both events were sponsored by the Russian Ministry of Energy to discuss sustainable development and Russia’s transition to low-carbon development, improving the greenhouse gas emissions inventory, including the preparation of a national greenhouse gas emissions survey.

The participants included Ruslan Edelgeriyev, special representative of the Russian President on climate issues, as well as representatives of the Ministry of Energy, Ministry of Economic Development of the Russian Federation, Russian Meteorological Service (Roshydromet), RUSAL, EuroSibEnergo, SUEK, etc.

Since 2015, RusHydro has been a member of the Climate Partnership of Russia, which seeks to unite the efforts of businesses in the interests of transition to environmentally friendly technologies.

In 2018, the Company continued to report on greenhouse gas emissions to the CDP (Carbon Disclosure Project), having been its participant since 2015.

In 2018, RusHydro also continued its work, together with EuroSibEnergo and the Association of Hydropower of Russia, within the working group on developing a methodological approach to understanding global climate change processes in terms of greenhouse gas emissions from the surface of HPP freshwater reservoirs and evaluating their absorbing capacity.

In March 2018, RusHydro and the Hydropower of Russia Association held a round table in Moscow “Hydropower in the context of the transition of the energy sector of the Russian Federation to sustainable and low-carbon development” the event discussed a wide range of issues related to the sustainable development of hydropower, existing methodologies for assessing the compliance of hydropower projects with sustainable development criteria, ensuring reliable operation of hydroelectric power plants amidst climate change, minimizing the negative impact on biodiversity during construction and subsequent operation of hydroelectric power plants, the impact of hydroelectric power plants and their reservoirs on the balance of greenhouse gases.

B. Bogush, member of the Board, First Deputy General Director - Chief Engineer of RusHydro, representatives of federal authorities, energy companies, the Association of Hydropower of Russia, scientific and environmental organizations took part in the round table.

Based on the results of the round table, a decision was made on the desirability of adapting the existing international and Russian methods of calculating and studying the effect of reservoirs on the greenhouse gas balance in order to properly take into account the natural conditions Russian hydroelectric reservoirs operate in, and the need to develop methodological approaches to ensuring and assessing projects criteria for sustainable development.

Water use and discharge

With most of its operations based around water bodies, RusHydro Group is a major user of national water resources.

RusHydro strictly adheres to the applicable Russian laws and timely obtains all necessary permits and licenses for water use and protection of water bodies from the authorized government agencies. The Company’s water withdrawal activities have no significant impact on water sources. [20.0]

In 2018, RusHydro Group’s water consumption increased by 5.86% y-o-y to 786,864,000 m³, with 97% of water taken for operational purposes.

Impact on water bodies

The Group’s waste and drainage water is discharged in strict compliance with the applicable Russian laws. The rights to use water bodies for such purposes are confirmed by relevant permits and licenses duly issued by the authorized government agencies. The same permits and licenses set out the applicable discharge limits. [20.0] In 2018, waste water discharges totaled 607,506,000 m³. [20.0]

In 2018, the Company continued to report on water use and protection of water bodies. The Company’s water consumption increased by 5.86% y-o-y to 786,864,000 m³, with 97% of water taken for operational purposes.

Waste water discharge by treatment method, ‘000 m³ per annum (2013-18)

<table>
<thead>
<tr>
<th>Year</th>
<th>No treatment</th>
<th>Insufficiently treated</th>
<th>Clean under statutory requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,578</td>
<td>337,160</td>
<td>22,461</td>
</tr>
<tr>
<td>2017</td>
<td>4,393</td>
<td>333,666</td>
<td>22,749</td>
</tr>
<tr>
<td>2018</td>
<td>5,706</td>
<td>353,605</td>
<td>22,605</td>
</tr>
</tbody>
</table>

In 2013, the Company began disclosing HPP reservoir level data on a designated web page at: http://www.rushydro.ru/hydrology/informer/
Biodiversity conservation

Impact on biodiversity

While none of RusHydro’s power generation facilities is located within specially protected natural areas, RAO ES East’s grid infrastructure does extend to such places, sharing them with rare plant and animal species. 

The habitat of the mandarin duck (Aix galericulata) in the Amur Region is impounded by the Nizhne-Bureyskaya HPP. As a rare species, the bird is on the Russian Red List and the 1996 IUCN Red List of Threatened Animals, and mentioned in Appendix 2 to the Bonn Convention and migratory bird protecting appendices to bilateral agreements between Russia, Japan, the Republic of Korea and the DPRK.

Another rare species affected by the construction of Nizhne-Bureyskaya HPP and activities of JSC DRSK is the Far Eastern stork (Ciconia boyciana). The Far Eastern stork is on the Russian Red List and the 1996 IUCN Red List of Threatened Animals, and mentioned in Appendix 1 to the CITES and migratory bird protecting appendices to bilateral agreements between Russia, Japan, the Republic of Korea and the DPRK. In 2018, JSC DRSK proposed an initiative to install supports for stork nests.

Protected species’ habitats affected by activities of RusHydro Group

The habitat of the mandarin duck (Aix galericulata) in the Amur Region is impounded by the Nizhne-Bureyskaya HPP. As a rare species, the bird is on the Russian Red List and the 1996 IUCN Red List of Threatened Animals, and mentioned in Appendix 2 to the Bonn Convention and migratory bird protecting appendices to bilateral agreements between Russia, Japan, the Republic of Korea and the DPRK.

The impoundment area of the dam also covers a primary habitat of Aleuritopteris luhnii, a rare fern listed in Russia as a threatened plant species.

The process of impounding Nizhne-Bureyskaya HPP reservoir also affected the habitats of local ungulates.

As the Group seeks to minimize its impact on biodiversity and protected natural areas, none of its activities cause reduction of species, habitat conversion, or introduction of invasive species, pests or pathogens. 

Water bodies affected by wastewater discharges of RAO ES East Subgroup: affiliation, volume and biodiversity

<table>
<thead>
<tr>
<th>RAO ES East Subgroup Subsidiary</th>
<th>Water body</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSC DGK</td>
<td>Kindinloye reservoir</td>
<td>9.6</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Kontsovov River</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC Magadanenergo</td>
<td>Prometehotchnaya Bay</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC Sakhalinenergo</td>
<td>Kolysny Klyuch Stream</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC Yakutskenergo</td>
<td>Partizanskaya River</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC Chukotenergo</td>
<td>Olongoro River reservoir</td>
<td>43.2</td>
<td>High</td>
</tr>
<tr>
<td>JSC Chukotenergo</td>
<td>Samyonovskiy Stream</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Amunmaita River</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Amurskaya Anabranch</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Amur River</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Lake Khopyr</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Galbon Anabranch (Old Amur)</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Zapadnaya Bay</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Nante Stream</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Pravaya Beryozovaya River</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Chersaya River</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Porkheevka Stream</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Gnilaya Pad Stream</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Malaya Sit River</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Rudka Stream</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Bezymanny Stream</td>
<td>-</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Bystraya River</td>
<td>43.2</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Magadanka River</td>
<td>127.5</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Kamenshikha River</td>
<td>37.9</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Myanja River</td>
<td>37.9</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Gulf of Patience (Sea of Okhotsk)</td>
<td>211,250</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Lena River</td>
<td>515,610</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Vilyuy River</td>
<td>21,290</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Kazachka River</td>
<td>22</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Lake Olhotrichye</td>
<td>0.05</td>
<td>Medium</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Chaun Bay</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Vilyuy River</td>
<td>72,400</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Yana River</td>
<td>29,297</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Aldan River</td>
<td>154,638</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Indigirka River</td>
<td>14,002</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Allah-yun River</td>
<td>5,550</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Nera River</td>
<td>3,658</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Kholmskaya Bay</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Vilyuy River</td>
<td>72,400</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Yana River</td>
<td>29,297</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Aldan River</td>
<td>154,638</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Indigirka River</td>
<td>14,002</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Allah-yun River</td>
<td>5,550</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Nera River</td>
<td>3,658</td>
<td>Supreme</td>
</tr>
<tr>
<td>JSC UESK</td>
<td>Kholmskaya Bay</td>
<td>-</td>
<td>High</td>
</tr>
</tbody>
</table>

1. No water body is a protected natural reserve.
Biodiversity conservation

RusHydro Group focuses its biodiversity conservation efforts on five major areas:

- the Company’s primary goal and sets a zero plant and animal extinction target for 2025.
- As part of Mainstreaming Biodiversity Conservation into Russia’s Energy Sector Policies and Operations, a UNDP-GEF project run by the Ministry of Natural Resources and the Environment of the Russian Federation ("the Project"); RusHydro took a number of biodiversity conservation measures in 2012–2017. In particular, borders of protected natural areas were changed to move them away from the impoundment area of Nizhne-Bureyskaya HPP and lift restrictions on the dam construction.

Potential environmental impact of suitable dam sites in the Amur Region was assessed to proactively evaluate risks of local hydropower projects and plan biodiversity conservation measures. As part of the project "Bureysky Compromise", a nature park was established to protect local ungulates and move threatened plants from the impoundment area. These activities were financed with the funds of the UNDP Project and, in fact, are compensatory measures provided for by the Nizhne-Bureyskaya HPP construction project. In 2018, two forest guard lodges were built in the Bureysky Nature Park. A plan was developed to minimize the impact on animals during the construction of Nizhne-Zeyskaya HPP.

The Biodiversity Conservation Projects section was added to the corporate website through joint efforts of the Project’s stakeholders. In 2018, effectiveness of RusHydro’s biodiversity conservation initiatives was confirmed by Stewart Williams, an independent UNDP expert, during the final audit of the Project.

RusHydro Group’s biodiversity conservation activities

- Protected natural areas (sponsorship and support)
- Protection of threatened ungulates (project "Bureysky Compromise")
- Plant conservation (project "Bureysky Compromise")
- Bird conservation
- Restoration of fish populations (fish stocking)

Restoration of fish populations (fish stocking)
into the wild, comprised area preparation measures and provided for awareness initiatives aimed at picturing the leopard as a national heritage and forming a responsible attitude to the environment among local communities.

In July 2018, two non-relative species of the Persian leopard – Elbrus (male) and Volna (female) – were released in the Alania National Park after birth preparing for their life in the wild. In the meantime, a team of zoologists, hydropower engineers and volunteers analyzed natural ecosystems in North Ossetia to select the best site for leopards to be released.

Elbrus and Volna, who completed a similar training course, spent two years in the Sochi Breeding Center after birth preparing for their life in the wild. The joint program of RusHydro and Severtsov Institute of Ecology and Evolution for the reintroduction of Persian leopards in North Ossetia received the Vernadsky National Environmental Award as the Best Social and Environmental Initiative in 2018.

As a result, the Alania National Park was selected for the first release. The national park was fitted with photo and video cameras, and the leopards were carrying GPS tracking collars to make it possible for researchers to monitor the animals in their habitats. The intensive monitoring of the leopards was carried in accordance with Order No. 300 issued by the Ministry of Natural Resources and the Environment of the Russian Federation on June 30, 2015, Guidelines for Calculation of Gross Carbon Dioxide Emissions by TPPs and Boilers (RD 153-34.0-02.318-2001), and data from the Carbon Fund. Greenhouse gas emissions were calculated per facility based on the fuel consumption of each facility.

In 2018, emissions of greenhouse gas went up 1.4% driven by higher power output at the facilities of RAO ES East Subgroup and an increase in reference fuel consumption.

Rehabilitation of disturbed areas

Habitats preserved and rehabilitated by RAO ES East Subgroup (30a-3)

<table>
<thead>
<tr>
<th>Name</th>
<th>JSC DGK</th>
<th>JSC Magadanenergo</th>
<th>JSC Sakhalinenergo</th>
<th>JSC Chukotenergo</th>
<th>JSC LCM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1, 2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total disturbed area, ha</td>
<td>2,300.52</td>
<td>272.00</td>
<td>255.02</td>
<td>174.14</td>
<td>4,027.19</td>
<td>7,028.87</td>
</tr>
<tr>
<td>Total post-</td>
<td>59.00</td>
<td>51.00</td>
<td>3.22</td>
<td>0.50</td>
<td>24.39</td>
<td>138.11</td>
</tr>
<tr>
<td>construction area, ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topsoil stockpiled, '000 m³</td>
<td>275.61</td>
<td>0</td>
<td>0</td>
<td>578.78</td>
<td>854.39</td>
<td></td>
</tr>
<tr>
<td>Total in 2018</td>
<td>15.00</td>
<td>0</td>
<td>0.1</td>
<td>0.51</td>
<td>83.60</td>
<td>99.21</td>
</tr>
<tr>
<td>Total disturbed area, ha</td>
<td></td>
<td>0</td>
<td>0.1</td>
<td>0.50</td>
<td>24.39</td>
<td>138.11</td>
</tr>
<tr>
<td>Total post-</td>
<td>0</td>
<td>0</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>0.10</td>
</tr>
<tr>
<td>construction area, ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total rehabilitated area, ha</td>
<td>0</td>
<td>0</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>0.10</td>
</tr>
<tr>
<td>December 31, 2018</td>
<td>2,315.52</td>
<td>272.00</td>
<td>255.02</td>
<td>174.66</td>
<td>4,110.79</td>
<td>7,127.99</td>
</tr>
<tr>
<td>Total disturbed area, ha</td>
<td>59.00</td>
<td>51.00</td>
<td>3.22</td>
<td>0.50</td>
<td>24.39</td>
<td>138.11</td>
</tr>
<tr>
<td>Total post-</td>
<td>275.61</td>
<td>0</td>
<td>0</td>
<td>578.78</td>
<td>854.39</td>
<td></td>
</tr>
</tbody>
</table>

Greenhouse gas and air pollutant emissions

Rushydro uses renewables in its operation. HPPs produce no greenhouse gas emissions.

Still, emissions of greenhouse gas by the facilities of RAO ES East Subgroup were calculated in accordance with Order No. 300 issued by the Social and Environmental Initiative in 2018.

Ministry of Natural Resources and the Environment of the Russian Federation on June 30, 2015, Guidelines for Calculation of Gross Carbon Dioxide Emissions by TPPs and Boilers (RD 153-34.0-02.318-2001), and data from the Carbon Fund. Greenhouse gas emissions were calculated per facility based on the fuel consumption of each facility.

In 2018, emissions of greenhouse gas went up 1.4% driven by higher power output at the facilities of RAO ES East Subgroup and an increase in reference fuel consumption.

Direct greenhouse gas emissions by RAO ES East (scope 1), '000 tonnes (30b-1)

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 emissions, '000 tonnes</td>
<td>34,096.5</td>
<td>34,457.1</td>
<td>34,942.3</td>
<td>1.4</td>
</tr>
<tr>
<td>N2O emissions, '000 tonnes CO2-eq</td>
<td>191.1</td>
<td>171.20</td>
<td>120.2</td>
<td>2.7</td>
</tr>
<tr>
<td>CH4 emissions, '000 tonnes CO2-eq</td>
<td>14.4</td>
<td>13.9</td>
<td>14.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Total emissions</td>
<td>34,229.9</td>
<td>34,588.2</td>
<td>35,077.1</td>
<td>1.4</td>
</tr>
<tr>
<td>natural gas combustion</td>
<td>9,956.0</td>
<td>10,101.5</td>
<td>10,147.9</td>
<td>0.5</td>
</tr>
<tr>
<td>fuel oil combustion</td>
<td>693.5</td>
<td>712.0</td>
<td>723.1</td>
<td>1.6</td>
</tr>
<tr>
<td>solid fuel combustion</td>
<td>23,600.4</td>
<td>23,774.6</td>
<td>24,206.1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Intensity of greenhouse gas emissions by RAO ES East (30b-4)

The CO2-equivalent emission intensity is calculated as a ratio of total emissions (tonnes CO2-eq.) to electric power (mn kWh) and heat (‘000 Gcal) produced.

One of the key challenges accounted for by RusHydro in its updated Environmental Policy (approved by the Board of Directors on August 9, 2018) is the global climate change and need to adapt to it. The year 2015 was recommended by the Ministry of Economic Development of the Russian Federation to be used as the base year in the greenhouse gas reduction roadmap for the Russian public sector companies. The intensity of CO2 emissions is set to decrease 7.7% in the electricity generation segment and 6.4% in the heat production segment.

Intensity of greenhouse gas emissions from power generation, tonnes CO2-eq

Net of Cascade of 16 hydropower plants producing no greenhouse gas emissions.

Intensity of greenhouse gas emissions from heat production, tonnes CO2-eq
The Expansion of Installed Low-Carbon Capacity target is planned to be achieved with the Comprehensive Modernization Program (Long-Term Development Program for 2012–2020 with an outlook until 2025) providing for retrofit of RusHydro’s generating facilities. RusHydro is also heavily engaged in renewable energy projects.

In particular, the Company builds smaller HPPs in Northern Caucasus. In November 2018, RusHydro commissioned a 900 kW wind power plant in the Arctic settlement of Tiksi in the Republic of Sakha (Yakutia).

In 2018, measures were taken at the Company’s subsidiaries in the Far East to reduce air pollutant emissions:
- minor and major repairs at dust collecting equipment, aspiration bunkers and scrubbing towers to maintain the flue gas quality at the required level. Such measures were taken at Blagoveshchenskaya CHPP, Raychkikhinskaya CHPP, Primorskaya GRES, Neryungrinskaya GRES, Artyomovskaya CHPP, Vladivostokskaya CHPP-2, Partizanskaya GRES, Amurskaya CHPP, Komsomolskaya CHPP-2, Mayskaya GRES, Khabarovsky CHPP-1, Khabarovsky CHPP-3, Urgalskaya boiler plant, and Arkagalinskaya GRES;
- rehabilitation of Khabarovsky CHPP-1 and Khabarovsky CHPP-3 to upgrade boilers and hot-water peaking boiler plant to feed on natural gas.

Air pollution is monitored at all production facilities of RusHydro Group. In 2018, SOx emissions increased by 11% on the back of a higher power output at gas-fired thermal power plants.

2.1% drop in CO₂ specific emissions associated with electricity generation.

Waste

Most wastes from RusHydro Group’s generating assets are wastes belonging to hazardous classes IV and V. They include low-hazard wastes, such as soil stripped during coal mining, bottom coal ashes, and waste from construction and repairs. Accumulated waste is collected by specialized contractors duly licensed to collect, transport and treat such waste.

Total waste by hazard class in 2018, tonnes

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RusHydro Subgroup</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste class I and II</td>
<td>21</td>
<td>31</td>
<td>18</td>
<td>-42</td>
</tr>
<tr>
<td>Hazardous waste class III, IV and V</td>
<td>29,179</td>
<td>29,191</td>
<td>23,178</td>
<td>-21</td>
</tr>
<tr>
<td>Total</td>
<td>29,200</td>
<td>29,222</td>
<td>23,196</td>
<td>-21</td>
</tr>
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<td><strong>RAO ES East Subgroup</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste class I and II</td>
<td>33</td>
<td>39</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>Hazardous waste class III, IV and V</td>
<td>24,743,429</td>
<td>26,570,307</td>
<td>29,596,949</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>24,776,462</td>
<td>26,570,346</td>
<td>29,596,995</td>
<td>11</td>
</tr>
<tr>
<td><strong>RusHydro Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste class I and II</td>
<td>54</td>
<td>70</td>
<td>63</td>
<td>-10</td>
</tr>
<tr>
<td>Hazardous waste class III, IV and V</td>
<td>24,722,608</td>
<td>26,599,498</td>
<td>29,620,137</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>24,772,662</td>
<td>26,599,569</td>
<td>29,620,190</td>
<td>11</td>
</tr>
</tbody>
</table>
EVEN MORE SUSTAINABLE

RusHydro Group’s corporate governance aims to protect the rights and interests of the shareholders, build and maintain trusted relationships between the Company and its investors, and grow the Company’s value and dividend yields.

It complies with applicable laws and reflects today’s trends and best practices, while fulfilling the requirements associated with the listing of shares on the Moscow Exchange and of depositary receipts on the London Stock Exchange and on the U.S. OTCQX over-the-counter market.

RusHydro Group has the state as its controlling shareholder, which has, due to its majority stake in the authorized capital, significant power with respect to corporate governance. However, this power is corporate rather than administrative by nature. Certain procedures for the state to exercise its rights as a shareholder are stipulated by law, setting out the process for the government to make decisions as regards the Company using its corporate rights.

The Group’s corporate governance principles and procedures are laid out in the Company’s Charter and internal regulations. The corporate practices are formalized in the Corporate Governance Code. Its adoption confirms the Company’s commitment to complying with the best corporate governance practices, including the recommendations of the Bank of Russia’s Corporate Governance Code.

The Group’s corporate governance principles and procedures are laid out in the Company’s Charter and internal regulations. The corporate practices are formalized in the Corporate Governance Code.

Key principles

- Equitable and fair treatment of all shareholders
- Professionalism, responsibility and accountability of the Board of Directors to the Company's shareholders
- Transparency and accessibility of information about the Company
- Effective system of internal control and risk management
- Exercise by all shareholders, the Company, its management bodies, officers and other stakeholders of their rights in good faith, prevention of abuse of rights
- Prevention of any shareholder actions aimed at causing harm to other shareholders or the Company
- Continuous improvement of corporate governance practices

Key principles of corporate governance

- External auditor: PricewaterhouseCoopers
- Internal Audit Commission
- Committees under the Board of Directors:
  - Strategy Committee
  - Nomination and Compensation Committee
  - Investment Committee
  - Committee on Energy Development of the Far East
  - Audit Committee
  - Committee on Reliability, Energy Efficiency and Innovation
- The Board of directors (13 members)
  - Chairman of the Board of Directors: Yury Trutnev
- Chairman of the Management Board – General Director: Nikolay Shulginov
- Management Board
- Subsidiaries

The Company’s position on other important matters

- Election
- Appointment
- Accountability

The Company’s position on key matters

- Implementation of resolutions
- Election
- Report on the audit of the Company’s statements
- Implementation of resolutions

Corporate governance structure

General Meeting of Shareholders
(Approximately 350,000 shareholders exercising their rights at annual and extraordinary general meetings of shareholders)
Subsidiary management

RusHydro (including indirectly through subsidiaries) has stakes in authorized capital of companies engaged in electricity and heat generation and distribution, energy facilities design, construction, repair, maintenance, rehabilitation and modernization, and other activities.

The Company contributes to subsidiaries’ strategy delivery, stable economic growth and investment appeal, and protection of rights and interests of the shareholders of both the Company and its subsidiaries.

The Company manages its subsidiaries by being represented at general meetings of shareholders/participants, on boards of directors and supervisory bodies of the subsidiaries.

Improving the corporate governance system

In 2018, the Company continued to implement the standards set forth in the Code and aimed at corporate governance improvement by consistently amending the internal regulations and applying the standards in the day-to-day operations.

The following key actions were taken in 2018:

- development of an onboarding program for first-time elected members of the Board of Directors;
- prevention and resolution of conflicts of interest on the Board of Directors;
- engagement by the Board of Directors of independent external experts (advisors) to work on matters within its remit;
- improvement of the Board of Directors’ performance through offering educational and professional development opportunities for its members;

- recommendations regarding material corporate actions by independent directors before their approval by the Board of Directors;
- access by the Company’s shareholders and members of the Board of Directors to the documents containing information on the Company’s subsidiaries;
- candidates to the Board of Directors were assessed with respect to necessary experience and knowledge, good reputation and absence of conflict of interest, with the results of the assessment included in the materials for the Annual General Meeting of Shareholders;
- the Board of Directors’ performance was independently assessed, with the results reviewed by the Board of Directors at a meeting held in person;
- the number of meetings of the Board of Directors held in person was increased;
- the quality and level of detail of information disclosed in the Company’s annual report and on the Company’s website were improved;
- the information Policy Regulations were updated to reflect global and Russian best practices;
- policy on Rotation of Auditors and Policy on the Ownership of Shares (Interests) in PJSC RusHydro were amended to provide members of RusHydro’s Board of Directors with the right to access documents and make inquiries as regards subsidiaries and to go into matters relating to material aspects of their business.

Deciding on matters reserved to supreme governing bodies of the subsidiaries where the Company exercises the rights of the sole shareholder (participant) falls within the remit of the Management Board. Establishing the Company’s position on key matters regarding subsidiaries (reorganization, liquidation, increase of the authorized capital, approval of major transactions, participation of the subsidiary in other energy organizations, disposal of energy assets) falls within the remit of the Board of Directors. The Company’s position on other important matters regarding subsidiaries (KP approval (adjustment), participation of the subsidiary in non-energy organizations, nomination of candidates to the subsidiary’s management and supervisory bodies, etc.) is established by the Management Board.

In 2018, aiming to improve the quality and transparency of the corporate governance with respect to subsidiaries, the Company’s internal regulations were amended to provide members of RusHydro’s Board of Directors with the right to access documents and make inquiries as regards subsidiaries and to go into matters relating to material aspects of their business.

Compliance with the Corporate Governance Code

As a result of corporate governance improvement efforts and implementation of the standards set forth in the Code, RusHydro came to observe 92% of the principles in 2018, compared to 63% in 2016.

For a detailed report on the Company’s compliance with the Corporate Governance Code, see Appendix № 1.

Compliance with the principles of the Corporate Governance Code

<table>
<thead>
<tr>
<th>Observance of standards and principles of the Code</th>
<th>Observed</th>
<th>Partially observed</th>
<th>Not observed</th>
<th>Total 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shareholder rights and equitable treatment of shareholders</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>The Company’s Board of Directors</td>
<td>20</td>
<td>23</td>
<td>32</td>
<td>12</td>
</tr>
<tr>
<td>The Company’s Corporate Secretary</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Remuneration of the Company’s directors, executives and other key managers</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Risk management and internal control system</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Disclosures and the Company’s information policy</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Material corporate actions</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Compliance with the principles of the Corporate Governance Code was assessed based on the Bank of Russia’s methodology and reporting recommendations with respect to such compliance (see to Bank of Russia Letter No. RU&СБ/1 от 17 February 2016). For a full report on the Company’s compliance with the principles and recommendations of the Corporate Governance Code, including explanations of deviations from the compliance assessment criteria, see Appendix № 1 to RusHydro’s annual report.
Corporate governance quality assessment

In 2018, corporate governance quality was externally assessed by the Russian Institute of Directors (RID).

In September 2018, the RID increased RusHydro’s corporate governance rating according to the National Corporate Governance Rating (NCGR) scale from level 7++ to level 8 “Advanced Corporate Governance Practice”.

The Company’s corporate governance practices were assessed based on four components, each including a set of criteria to reflect corporate governance policies, procedures and structures as required by applicable Russian laws, the Moscow Exchange’s Listing Rules, recommendations of the Russian Corporate Governance Code and global best practices.

The RID has concluded that the Company complies with the Russian legislative requirements with respect to corporate governance and observes many of the recommendations of the Russian Corporate Governance Code. In addition, the Company runs a rather low risk of losses to owners due to corporate governance issues.

THE COMPANY INTENDS TO FURTHER IMPROVE ITS CORPORATE GOVERNANCE RATING

Corporate governance improvement prospects

Key areas for improvement as regards the Company’s corporate governance in 2019 include the following:

• Amend the Company’s Charter and internal regulations to reflect the following standards:
  • resolutions on critical matters set forth in recommendation 170 of the Code to be passed by a qualified majority of at least three-quarters or a majority vote involving all elected directors;
  • shareholders to be granted the right to access the list of persons entitled to attend General Meetings of Shareholders from the date following the date they submit their request to the Company (from the date the list is drawn up if the request is submitted beforehand);
  • enable shareholders to vote at Annual General Meetings of Shareholders via an electronic voting system;
  • arrange for a comprehensive formal self-assessment of the Board of Directors and its committees with a focus on their performance as a single body and individual contributions of directors to the proceedings of the Board of Directors and its committees; draft recommendations to the Board of Directors to improve the operating performance of the Board of Directors and its committees; and prepare a report on the results of the self-assessment exercise to be reviewed by the Board of Directors at a meeting held in person;
  • disclose in the Company’s annual report the amount of remuneration of each member of the Board of Directors.

SHAREHOLDERS AND INVESTORS

Share capital and securities

RusHydro’s authorized capital

The authorized capital of the Company amounts to 426,288,813,551 ordinary shares, each with a par value of RUB 1.5.

Additional share issuance

On June 1, 2018, the Board of Directors resolved to increase the authorized capital by RUB 14,013,888,828 with an additional placement via open subscription. The decision to issue additional shares was registered by the Bank of Russia on August 27, 2018, with the issuance being assigned the registration number of 1-01-55038-E-043D.

The proceeds from the additional issue are going to the construction of 110 kV Pevek-Bilibino high-voltage power lines in Chukotka and to the upcoming refurbishment of the Chaun and Bilibino energy hub following the transformation of the power units at Bilibino NPP, which has reached the end of its service life.

Information on the Company’s shares

• the governing bodies of the Russian Federation have no special right to participate in the management of the Company (“golden share”);
• the executive bodies have no information on any interests in the share capital of over 5%, apart from those already disclosed by the Company;
• the total number of voting shares with breakdown by categories (types): 426,288,813,551 ordinary registered shares. The Company did not issue preferred or ordinary shares with differing par values;
• the Company does not hold any of its own shares;
• Company’s subsidiaries hold 3,852,259,680 shares, or 0.9% of the Company’s authorized capital.1

The number of shares at the disposal of the Company’s subsidiaries

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of shares, pcs</th>
<th>Share in authorized capital, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSC Hydroinvest</td>
<td>3,430,091,316</td>
<td>0.804460</td>
</tr>
<tr>
<td>JSC Zaramagskiye HPP</td>
<td>271,302,097</td>
<td>0.063643</td>
</tr>
<tr>
<td>PJSC DEK</td>
<td>73,093,031</td>
<td>0.017646</td>
</tr>
<tr>
<td>JSC RAO ES East</td>
<td>48,511,987</td>
<td>0.011380</td>
</tr>
<tr>
<td>JSC ChirkeyGESstroy</td>
<td>29,205,310</td>
<td>0.006851</td>
</tr>
<tr>
<td>PJSC Yakutskenergo</td>
<td>55,941</td>
<td>0.000513</td>
</tr>
</tbody>
</table>

1 As at December 31, 2018
3 RusHydro’s shares held by the Company’s subsidiaries were not used in voting at the Annual General Meeting of Shareholders that took place on June 27, 2018.
Shareholders

The Company’s shares are held by around 350,000 Russian and foreign investors. The Russian Federation owns the controlling stake of 258,161,535,606 shares, or 60.56% of the Company’s authorized capital.

The Russian Federation (state property) owns the Company’s shares via the Federal Agency for State Property Management (258,161,535,606 pcs) and ITAR-TASS News Agency (248,527 pcs).

Management (258,161,535,606 pcs) and the Federal Agency for State Property (state property) owns the Company’s shares via the ITAR-TASS News Agency (248,527 pcs).

Changes in the group of persons with the right to execute, directly or indirectly, at least 2% of the voting rights attached to the Company’s voting shares, %

As at December 31, 2016 As at December 31, 2017 As at December 31, 2018

- The Russian Federation as represented by the Federal Agency for State Property Management 67 61 61
- Gazprombank (joint-stock company) 5 13 13
- JSC Hydroinvest 3 2 8
- The Company’s other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2% 29 31 25

Outstanding shares

Moscow Exchange listing

The Company’s shares have been traded on the Moscow Exchange (formerly MICEX Stock Exchange) since February 4, 2008 (ticker: HYDR). The securities are listed in Level 1, the Exchange’s top quotation list.

Index inclusion:
- MICEX Russia Index (previous name - MICEX Index) MOEX;
- Electric Utilities Index MOEXEI;
- Broad Market Index MOEXBM;
- State-Owned Companies Index MOEXSCI;
- FTSE Emerging Index AWALLE;
- FTSE All-World Index AWORLDS;
- STOXX Russia Total Market TCRUP;
- STOXX Optimized Russia EEORGT;
- NASDAQ Russia NQRU;
- NASDAQ AlphaDEX Emerging Markets NQDXEM;
- NASDAQ Russia NQRU;
- FTSE4Good Emerging;
- STOXX Optimized Russia EEORGT.

Moscow Exchange trading information

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trading mode</td>
<td>T+: stocks and DRs</td>
<td>T+: stocks and DRs</td>
<td>T+: stocks and DRs</td>
</tr>
<tr>
<td>Currency</td>
<td>RUB</td>
<td>RUB</td>
<td>RUB</td>
</tr>
<tr>
<td>Maximum trade price</td>
<td>0.994</td>
<td>1.100</td>
<td>0.810</td>
</tr>
<tr>
<td>Minimum trade price</td>
<td>0.575</td>
<td>0.717</td>
<td>0.476</td>
</tr>
<tr>
<td>Year-end trade price</td>
<td>0.926</td>
<td>0.729</td>
<td>0.486</td>
</tr>
<tr>
<td>Trading volume, bn pcs</td>
<td>154</td>
<td>173</td>
<td>156</td>
</tr>
</tbody>
</table>

1. In accordance with the Moscow Exchange’s methodology for calculating the free float factor published at http://www.moex.com/ru/index/MICEXINDEXCF/constituents/
2. For information on the ability of certain shareholders to obtain or actual cases of them obtaining an extent of control disproportionate to their contribution to the authorized capital, including through shareholder agreements or based on them holding ordinary and preferred shares with differing par values, please see the website at: http://www.rushydro.ru/upload/iblock/65a/Svedeniya-o-vozmozhnosti-priobreteniya-stepeni-kontrolya.pdf.
3. As of March 7, 2017, Hydroinvest no longer the Company’s shareholder, whereas the aggregate stake of EZOP and Energy Index – HydroOGK in the Company’s authorized capital went down to 20% and 22%, respectively. As at September 26, 2018, Hydroinvest held 22% in RusHydro’s authorized capital following the incorporation of EZOP and Energy Index – HydroOGK into Hydroinvest.
## CORPORATE GOVERNANCE

### Share performance on the Moscow Exchange

![Graph showing share performance on the Moscow Exchange](image)

### Shares vs key indices of the Moscow Exchange

![Graph showing shares vs key indices of the Moscow Exchange](image)

### Shares traded on the global market

As at December 31, 2018, the number of shares traded outside of the Russian Federation in the form of ADRs and GDRs stood at 11,639,652,200, or 2.73% of the Company's authorized capital.

### ADR trading on the London Stock Exchange

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum trade price, USD</td>
<td>1.570</td>
<td>1.810</td>
<td>1.370</td>
</tr>
<tr>
<td>Minimum trade price, USD</td>
<td>0.750</td>
<td>1.200</td>
<td>0.640</td>
</tr>
<tr>
<td>Year-end trade price, USD</td>
<td>1.655</td>
<td>1.200</td>
<td>0.640</td>
</tr>
<tr>
<td>Trading volume, bn pcs</td>
<td>188</td>
<td>175</td>
<td>195</td>
</tr>
</tbody>
</table>

### ADR performance on the London Stock Exchange

![Graph showing ADR performance on the London Stock Exchange](image)

### GDR and ADR program structure as at December 31, 2018

<table>
<thead>
<tr>
<th>Type</th>
<th>Start of trading</th>
<th>Depository bank</th>
<th>Ratio</th>
<th>Ticker</th>
<th>Quantity as at December 31, 2018, pcs</th>
<th>Trading platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule 144A GDRs</td>
<td>June 17, 2008</td>
<td>The Bank of New York Mellon</td>
<td>1 GDR = 100 ordinary shares</td>
<td>HYDR</td>
<td>78,273</td>
<td>London Stock Exchange (Main Market – IOB)</td>
</tr>
<tr>
<td>Level 1 ADRs</td>
<td>August 7, 2009</td>
<td>The Bank of New York Mellon</td>
<td>1 ADR = 100 ordinary shares</td>
<td>RSHYY</td>
<td>116,318,249</td>
<td>OTCQX</td>
</tr>
</tbody>
</table>

### Share performance over the last three years

#### 2016

In 2016, the MOEX Russia Index added 27%, the MOEX Electric Utilities Index – 110%, and RusHydro shares grew by 36%. The domestic market was buoyed by the expected recovery of the Russian economy and ruble appreciation in the second half of the year. RusHydro shares grew on the back of high dividend payments, full liberalization of the HPP capacity market in Siberia, as well as overall strong hydro performance thanks to higher water levels. An additional boost to shares was provided by measures to optimize operating and investment expenses, decisions on refinancing the debt of RAO ES East Subgroup by signing a forward contract for RUB 55 bn in equity capital with VTB Bank (PJSC), and full consolidation of the RAO ES East Shares for 100% ownership. The shares also benefited from the disposal of major assets by the Company for a total amount of over RUB 15 bn.

#### 2017

In 2017, the MOEX Russia Index was down 6%, the MOEX Electric Utilities Index – 110%, and RusHydro shares lost 21%. The Russian market faced headwinds in the form of geopolitical risks, which included talks on new US sanctions against a backdrop of the general lack of investor interest in the electric power industry. In Q2 2018 onwards, the Russian market and RusHydro shares were under pressure from sanctions on RUSAL Group, the biggest power consumer in Siberia and the Group’s partner on the BEMO project, geopolitical risks, including talks on introducing new sanctions by the US (DASKA, August 2018), as well as lower interest in emerging market companies with no USD-denominated export revenue on the part of global investors while the US was tightening its monetary policy. Starting mid-October, RusHydro’s shares began slipping in price due to investor and analyst expectation of MSCI excluding the Company from its Russia index, which it did in late November 2018.

#### 2018

In 2018, the MOEX Russia Index was up 7.8% year-on-year, while the Moscow Stock Exchange Power Index was down 11.4%, with shares in RusHydro losing 33.4%. In 2018, the market value of RusHydro shares decreased against a backdrop of the general lack of investor interest in the electric power industry. In Q2 2018, RusHydro’s shares traded in line with the market. From Q2 2018 onwards, the Russian market and RusHydro shares were under pressure from sanctions on RUSAL Group, the biggest power consumer in Siberia and the Group’s partner on the BEMO project, geopolitical risks, including talks on introducing new sanctions by the US (DASKA, August 2018), as well as lower interest in emerging market companies with no USD-denominated export revenue on the part of global investors while the US was tightening its monetary policy. Starting mid-October, RusHydro’s shares began slipping in price due to investor and analyst expectation of MSCI excluding the Company from its Russia index, which it did in late November 2018.

### Capitalization

#### RusHydro’s market capitalization, RUB mn

![Bar chart showing RusHydro’s market capitalization](image)

**Note:** The official website of the securities market operator (PJSC Moscow Exchange) http://www.moex.com/s26 Market capitalization is calculated as the number of shares of the respective category or type multiplied by the market price of one share as disclosed by the market operator.

Source: http://www.moex.com/s26/Marthmarkcapitalization is calculated as the number of shares of the respective category or type multiplied by the market price of one share as disclosed by the market operator.
Dividends

RusHydro’s dividend policy is focused on supporting the Company’s strategic development for the benefit of its shareholders by striking an optimal balance between dividend payouts and profit capitalization.

To ensure transparency in determining the amount of dividends and dividend payments, the Company has Regulations on the Dividend Policy in place, which was approved by the resolution of RusHydro’s Board of Directors (minutes No. 195 dated March 28, 2014). When determining the recommended amount of dividends and submitting it to the General Meeting of Shareholders for approval, the Board of Directors considers the Company’s net profit in accordance with the consolidated financial statements of RusHydro Group in accordance with the International Financial Reporting Standards (IFRS) and the Russian Accounting Standards (RAS), as well as the Company’s need to finance the investment program. The Company allocates no less than 5% of its profit under the IFRS consolidated financial statements of RusHydro Group to pay dividends at the end of the period (http://www.eng.rushydro.ru/investors/Dividends/).

The Development Strategy of RusHydro Group until 2020 with an outlook for 2025 sets the dividend payout ratio of at least 50% of net profit, and the Company is always going to target the maximum level of dividend yield for its shareholders. [102]

Based on RusHydro’s performance in 2017, the Annual General Meeting of Shareholders on June 27, 2018 resolved to pay out dividends on the ordinary shares in the amount of RUB 11.23 bn, or 50% of the IFRS net profit.

Over the last three years, the Company has paid out a total of RUB 46.1 bn in dividends.

### Dividend history for the five years preceding the reporting year

<table>
<thead>
<tr>
<th>Reporting period for which the dividends were paid</th>
<th>Total amount of declared (accrued) dividends, RUB '000</th>
<th>Amount of dividends declared per share, RUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>5,248,250</td>
<td>0.01358751</td>
</tr>
<tr>
<td>2014</td>
<td>6,032,750</td>
<td>0.0154855</td>
</tr>
<tr>
<td>2015</td>
<td>11,011,046</td>
<td>0.038863</td>
</tr>
<tr>
<td>2016</td>
<td>19,875,503</td>
<td>0.0466245</td>
</tr>
<tr>
<td>2017</td>
<td>20,225,676</td>
<td>0.05263335</td>
</tr>
</tbody>
</table>

**For more details on RusHydro’s Dividend Policy see http://www.rushydro.ru**

**ON APRIL 19, 2019, RUSHYDRO’S BOARD OF DIRECTORS APPROVED AN AMENDED VERSION OF THE DIVIDEND POLICY® SETTING THE BASE VALUE FOR CALCULATING THE AMOUNT OF DIVIDENDS IN THE AMOUNT OF 50% OF RUSHYDRO GROUP’S NET PROFIT FOR THE RELEVANT REPORTING YEAR UNDER IFRS AND THE MINIMUM DIVIDEND (LOWER THRESHOLD) AT THE LEVEL® OF AVERAGE DIVIDEND FOR THE PREVIOUS THREE YEARS**

### Information on payment of declared (accrued) dividends on the Company’s shares in 2017

As at December 31, 2018, the Company had paid out RUB 11.19 bn in dividends, with unpaid dividends amounting to RUB 38 mn. The latter was due to reasons beyond the Company’s control: the Company or the Registrar (nominal holder) did not have the exact necessary address details or bank details.

The Company made the dividend payments to the federal budget in full, in the amount of RUB 6.8 bn. The Company has no dividends to the federal budget that are in arrears.

### Share of IFRS net profit allocated for dividends, %

<table>
<thead>
<tr>
<th>Year</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>159158</td>
</tr>
<tr>
<td>2017</td>
<td>555555</td>
</tr>
<tr>
<td>2018</td>
<td>555555</td>
</tr>
</tbody>
</table>

### Dividend yield, %

<table>
<thead>
<tr>
<th>Year</th>
<th>Dividend yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>161616</td>
</tr>
<tr>
<td>2017</td>
<td>171717</td>
</tr>
<tr>
<td>2018</td>
<td>181818</td>
</tr>
</tbody>
</table>

### Total shareholder return

Since 2016, total shareholder return (TSR), the Company’s central KPI metric, has been assessed by comparing the actual TSR values delivered by RusHydro against changes in the MOEX Russia Index, the key composite index of the Moscow Exchange (IMOEX, previously MICEX Index). Changes in the MOEX Russia Index are calculated as a relation between changes in the average Index value over the last 22 trading days of the reporting year and the average Index value of the last 22 trading days in the year preceding the reporting year. The KPI is deemed to be achieved (100% match) if the Company’s actual TSR grew faster than the MOEX Russia Index in the reporting period.

In 2018, the TSR was -32.8%, while the MOEX Russia Index grew by 12.2% over the same period.

### Shareholder and investor relations

During the reporting period, the Company focused closely on maximizing engagement with participants of the exchange market and improving efficiency of information disclosures.

As part of the investor engagement exercise, the Company held:
- more than 100 one-on-one and group meetings with the managers of major international and Russian investment funds;
- four quarterly conference calls for analysts, investors and rating agencies with the participation of the Company’s management;
- a visit to the Zaramagskaya HPP-1 construction site for analysts and investors.

The meetings focused on discussing RusHydro Group’s strategic priorities and plans, including its dividend policy, implementation of the Value Growth Plan, management efforts aimed at improving operational efficiency, and plans for asset modernization. In 2018, the Company also closely engaged with the leading global analytical agencies seeking to enforce compliance with the sustainable development criteria. Those agencies included:
- CDI (Carbon Disclosure Project);
- Sustainalytics;
- MSCI-ESG;
- FTSE-Russel;
- Vigeo Eiris;
- Robeco-SAM;
- Trucost;
- Energy Intelligence.
GOVERNING BODIES

General Meeting of Shareholders

The General Meeting of Shareholders is the supreme governing body of the Company, which operates in accordance with the laws of the Russian Federation, the Company’s Charter and the Regulations on the Procedure for Convening and Holding General Meetings of Shareholders of RusHydro.

On June 27, 2018, the Annual General Meeting of Shareholders was held in Moscow (Minutes No. 17 of June 28, 2018) and was attended by 501 shareholders, as well as media representatives, nominees to the governing and supervisory bodies of the Company, and other invitees. The meeting quorum stood at 87%.

No Extraordinary General Meetings of Shareholders were held in 2018.

Board of Directors

The Board of Directors consists of 13 members, 11 of whom were re-elected. In 2018, there were two Boards of Directors: one elected by the Annual General Meeting of Shareholders on June 26, 2017 and the other elected on June 27, 2018.

The transparency of the Board of Directors election process is ensured by a dedicated Board of Directors committee assessing candidates for compliance with the independence criteria.

Independent Directors and their role

Independent directors bring in well-balanced opinions and exercise unbiased judgment based solely on their experience and expertise. Independent directors and their input to the work of the Board of Directors enhance the trust and confidence of shareholders and a wide range of investors, improve the quality of management decisions, and promote compliance with corporate governance principles.

RusHydro meets Moscow Exchange’s listing requirements, and provides information on candidates’ experience and expertise.

Composition of the Board of Directors

The Board of Directors consists of 13 members, 11 of whom were re-elected. In 2018, there were two Boards of Directors: one elected by the Annual General Meeting of Shareholders on June 26, 2017 and the other elected on June 27, 2018.

Regulations on the Procedure for Convening and Holding the Board of Directors’ meetings of RusHydro are available on the Company’s website at: www.rushydro.ru

Director status, %

Years served on the Board of Directors, %

<table>
<thead>
<tr>
<th>Full name</th>
<th>Year of appointment</th>
<th>Status</th>
<th>Nominated by</th>
<th>Committee membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artem Avetisyan</td>
<td>2015</td>
<td>Non-executive</td>
<td>Russian Federation</td>
<td></td>
</tr>
<tr>
<td>Maxim Bystrov</td>
<td>2013</td>
<td>Independent</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
<tr>
<td>Pavel Grachev</td>
<td>2016</td>
<td>Independent</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
<tr>
<td>Sergey Ivanov</td>
<td>2015*</td>
<td>Independent</td>
<td>Russian Federation</td>
<td>+ + +</td>
</tr>
<tr>
<td>Vyacheslav Kravchenko</td>
<td>2014</td>
<td>Non-executive</td>
<td>Russian Federation</td>
<td>+ +</td>
</tr>
<tr>
<td>Pavel Livinsky</td>
<td>2018</td>
<td>Independent</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
<tr>
<td>Vyacheslav Pivovarov</td>
<td>2013</td>
<td>Independent</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
<tr>
<td>Mikhail Rasstrigin</td>
<td>2018</td>
<td>Non-executive</td>
<td>Russian Federation</td>
<td></td>
</tr>
<tr>
<td>Nikolay Rogalev</td>
<td>2016</td>
<td>Non-executive</td>
<td>Russian Federation</td>
<td></td>
</tr>
<tr>
<td>Yury Trutnev</td>
<td>2015</td>
<td>Non-executive</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
<tr>
<td>Sergey Shishin</td>
<td>2011</td>
<td>Non-executive</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
<tr>
<td>Andrey Shishin</td>
<td>2014</td>
<td>Non-executive</td>
<td>Gazprombank</td>
<td>+</td>
</tr>
<tr>
<td>Nikolay Shulgakov</td>
<td>2016</td>
<td>Executive</td>
<td>Russian Federation</td>
<td>+</td>
</tr>
</tbody>
</table>

AC – Audit Committee
NCC – Nomination and Compensation Committee
SC – Strategy Committee
CEDFE – Committee on Energy Development of the Far East
CREEI – Committee on Reliability, Energy Efficiency and Innovation
IC – Investment Committee

6+ years
4–5 years
1–3 years
Less than 1 year

Served on the Board of Directors from 2013 to 2014, and then starting from 2015.

Until August 7, 2018.

HR, innovation and investment, as well as production and R&D; have a track record of serving on boards of directors or in senior positions at other joint-stock companies listed on organized exchanges; have impeccable business and personal reputation, sufficient skills, expertise and experience to make decisions falling within the Board of Directors’ remit and perform their responsibilities efficiently.

All candidates nominated to the Company’s Board of Directors have higher education and are highly-professional and qualified, and:
- are recognized experts in energy, finance, law, strategic and corporate governance, audit, risk management,
The balance of the Board of Directors is achieved through a high level of professional knowledge and expertise, sufficient time for performing the duties of a member of the Board of Directors, and absence of a conflict of interest, all of which contribute to effective decision-making.

### Experience and competencies of the Board of Directors members

<table>
<thead>
<tr>
<th>Full name</th>
<th>Energy</th>
<th>Finance and audit</th>
<th>Management</th>
<th>Production</th>
<th>Research and development</th>
<th>Other competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artem Avetisyan</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Promotion of entrepreneurship</td>
</tr>
<tr>
<td>Maxim Bystrov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>Global economics</td>
</tr>
<tr>
<td>Pavel Grachev</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Law, Doctor of Law</td>
</tr>
<tr>
<td>Sergey Ivanov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>Nuclear Physics, Professor, corresponding member of the Russian Academy of Sciences, Doctoral Degree in Economics</td>
</tr>
<tr>
<td>Vyacheslav Kranchenko</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Law</td>
</tr>
<tr>
<td>Pavel Livinsky</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Economics</td>
</tr>
<tr>
<td>Vyacheslav Pirovarov</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Global Economics, Applied Economics, MBA</td>
</tr>
<tr>
<td>Mikhail Rasstrigin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>Economics</td>
</tr>
<tr>
<td>Nikolay Rogalev</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>Doctoral Degree in Technical Sciences, Professor</td>
</tr>
<tr>
<td>Yury Trutnev</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sergey Shishin</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>Doctoral Degree in Economics</td>
</tr>
<tr>
<td>Andrey Shishkin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nikolay Shulginov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>PhD in Technical Sciences</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>11</td>
<td>12</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

### Induction program

A newly elected member of the Board of Directors takes an induction program, including introduction to the members of the Management Board and familiarizing with:
- the Company’s by-laws;
- the Company’s key performance indicators;
- RusHydro Group Development Strategy and RusHydro Group’s Long-term Development Program;
- the specifics of the Company’s operations as a joint-stock company with a majority government stake and other specific aspects;
- the software and technical facilities used in the work of the Board of Directors.

Independent directors also acquaint themselves with additional rights and obligations of independent directors, their functions and roles in the Company’s corporate practice.

In addition, the Corporate Secretary arranges for the newly elected members of the Company’s Board of Directors to receive answers to their questions and sets up meetings with the Company’s officers.

### Education and further professional training

To improve its overall performance, the Board of Directors may decide to send its individual members for training and further professional development programs at the Company’s expense within the limits of the Company’s budget allocated for these purposes.

The training and further professional development programs for Board of Directors members are subject to approval by the Nomination and Compensation Committee.

### Short biographies of the Board of Directors members

#### YURY TRUTNEV

Chairman of the Board of Directors
Non-Executive Director
Representative of the Russian Federation, public officer

- Born in 1956
- Education, academic degree, academic rank: Graduated from the Perm National Research Polytechnic University with a degree in Mining Engineering
- Experience over the last 5 years:
  - 2013–present: Deputy Prime Minister of the Russian Federation and Presidential Plenipotentiary Envoy to the Far Eastern Federal District
- Positions held in collective governing bodies as of December 31, 2018:
  - member of the Supervisory Board of Rosatom State Corporation
  - Chairman of the Supervisory Board of the Far Eastern Federal University
  - Co-Chairman of the Russian Union of Martial Arts

#### ARTEM AVETISYAN

Non-Executive Director
Representative of the Russian Federation

- Born in 1976
- Education, academic degree, academic rank: Graduated from the Financial University under the Government of the Russian Federation with a degree in Finance and Lending
- Experience over the last 5 years:
  - 2011–present: Head of New Business at the Agency for Strategic Initiatives
  - 2012–present: Chairman of the Leaders Club
  - 2014–2016: Vice President of the NEO Centre
- Positions held in collective governing bodies as of December 31, 2018:
  - Chairman of the Board of Directors of Vostochny Bank
  - Chairman of the Board of Directors of Modulbank

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1. Relevant experience of the candidates to the Board of Directors in various areas of activity, based on the data reviewed from candidates to the Board of Directors, including education, professional track record, and other publicly available information.
2. As at December 31, 2018
PAVEL GRACHEV
Non-Executive Director
Independent Director

Born in 1973

Education, academic degree, academic rank:
Graduated from the Saint Petersburg State University and the University of Trieste (Italy) with degrees in law, Doctor of Law

Experience over the last 5 years:
» 2013–present: Chairman of the Management Board of NP Market Council
» 2013–present: Chairman of the Management Board of JSC ATS

Positions held in collective governing bodies as of December 31, 2018:
» member of the Supervisory Board of the NP Market Council
» member of the Board of Directors at JSC ATS
» member of the Board of Directors at JSC SO UES

MAXIM BYSTROV
Non-Executive Director
Independent Director

Born in 1964

Education, academic degree, academic rank:
Graduated from the National Research Moscow State University of Civil Engineering with a degree in Hydraulic Engineering and Power Plant Construction
Graduated from the Russian Foreign Trade Academy with a degree in International Economics

Experience over the last 5 years:
» 2016–present: General Director of MC Polyus LLC
» 2014–present: Chief Executive Officer of PJSC Polyus
» 2014–2016: President of JSC Polyus Krasnoyarsk
» 2013–2016: Interim Chief Executive Officer, Chief Executive Officer of Polyus Gold International Limited

Positions held in collective governing bodies as of December 31, 2018:
» Chairman of the Board of Directors at SL Gold
» Member of the Board of Directors of PJSC Polyus
» Member of the Board of Directors at PJSC FGIC UES

SERGEY IVANOV
Non-Executive Director
Independent Director

Born in 1961

Education, academic degree, academic rank:
Graduated from the National Research Nuclear University with a degree in Theoretical Nuclear Physics PhD degree in Economics, Professor
Corresponding member of the Russian Academy of Natural Sciences

Experience over the last 5 years:
» 2016–2018: General Director at RT-Capital
» 2015–2016: General Director of Nechernoasemagropromstroy Corporation
» 2012–2015: General Director of LENSENT
» 2011–2016: General Director of Energetic Russian Company (ERCO)
» 2007–2014: Chairman of the Presidium of the National Institute of Energy Security

VYACHESLAV KRAVCHENKO
Non-Executive Director
Representative of the Russian Federation

Born in 1967

Education, academic degree, academic rank:
Graduated from the Moscow State University with a degree in Law

Experience over the last 5 years:

Positions held in collective governing bodies:
» State representative in the Supervisory Board of the NP Market Council
» Chairman of the Board of Directors at JSC SO UES
» member of the Board of Directors of Rosseti

1 Maxim Bystrov was recognized by the Board of Directors as an Independent Director because at the date of recognition he met the formal criteria of being related to the Company’s substantial counterparties, including JSC ATS, JSC SO UES, JSC FSС and NP Market Council. The abovementioned relation is formal and does not affect Maxim Bystrov’s ability to act as a member of the Board of Directors of RusHydro in the interests of the Company and all of its shareholders.

2 Sergey Ivanov was elected Senior Independent Director by the Nomination and Compensation Committee of the Board of Directors of RusHydro. He was recognized by the Board of Directors as an Independent Director because at the date of recognition he met the formal criteria of being related to the state: he held the position of General Director at RT-Capital LLC, which is controlled by the Russian Federation, during the year prior to the election to the Board of Directors of RusHydro. The abovementioned relation is formal and does not affect Sergey Ivanov’s ability to act as a member of the Board of Directors of RusHydro in the interests of the Company. For more information, see the Company’s website at: https://www.rushydro.ru/upload/iblock/fe6/Extract-from-the-minutes-June-1-2018--271.pdf
**PAVEL LIVINSKY**

Non-Executive Director
Representative of the Russian Federation

Born in 1980

**Education, academic degree, academic rank:**

» Graduated from the Moscow State University with a degree in Economics in 2001
» Graduated from the Moscow State University with a Master's degree in Management in 2003

**Experience over the last 5 years:**

» 2017–present: President of Altera Capital

**Positions held in collective governing bodies:**

» Chairman of the Board of Directors at PISC FG CUES
» member of the Board of Directors of Rosseti
» member of the Board of Directors at JSC SO UES
» member of the Management Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
» President of the Sport Federation of Firefighters and Rescuers

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**MIKHAIL RASSTRIGIN**

Representative of the Russian Federation, public officer
Non-Executive Director

Born in 1983

**Education, academic degree, academic rank:**

Graduated from Ivanovo State Power Engineering University
» Degree in Heat Power Station Engineering, 2005;
» Bachelor of Economics, 2005.

**Experience over the last 5 years:**

» 2017-present: Deputy Minister of Economic Development
» 2017: Assistant Minister of Economic Development
» 2011–2017: Head of Electric Power, Natural Resources Directorate, Research Department, VTB Capital

**Positions held in collective governing bodies:**

» member of the Board of Directors of Rosseti
» member of the Board of Directors at JSC SO UES
» member of the Management Board of the Federal Antimonopoly Service

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**VYACHESLAV PIVOVAROV**

Non-Executive Director
Independent director

Born in 1972

**Education, academic degree, academic rank:**

Graduated from Ivanovo State Power Engineering University
Degree in Heat Power Station Engineering, 2005;
Bachelor of Economics, 2005.

**Experience over the last 5 years:**

» 2017–present: Deputy Minister of Economic Development
» 2017: Assistant Minister of Economic Development
» 2011–2017: Head of Electric Power, Natural Resources Directorate, Research Department, VTB Capital

**Positions held in collective governing bodies:**

» member of the Board of Directors at JSC SO UES
» member of the Management Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
» President of the Sport Federation of Firefighters and Rescuers

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**NIKOLAY ROGALEV**

Non-Executive Director
Representative of the Russian Federation

Born in 1962

**Education, academic degree, academic rank:**

Graduated from the Moscow Power Engineering Institute (heat power stations), Professor

**Experience over the last 5 years:**

» 2016-present: President of NP Scientific and Technical Council of the Unified Energy System
» 2015-present: Head of Department at the Moscow Power Engineering Institute (part-time)
» 2013-present: Dean of the Moscow Power Engineering Institute

**Positions held in collective governing bodies:**

» member of the Board of Directors of Rosseti
» member of the Board of Trustees of the Energy Without Borders Foundation

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1. INN: 7714961556
2. INN: 7703741291
SERGEY SHISHIN
Non-Executive Director
Representative of the Russian Federation

Born in 1963

Education, academic degree, academic rank:
Graduated from the KGB Moscow Higher Frontier Guards Command Academy
KGB Military School
Russian Presidential Academy of National Economy and Public Administration, degree in Public and Municipal Administration
PhD in Economics

Experience over the last 5 years:
» 2007–present: Senior Vice President at VTB Bank

NIKOLAY SHULGINOV
Executive Director
Representative of the Russian Federation

Born in 1951

Education, academic degree, academic rank:
Sergo Ordzhonikidze Novocherkassk Polytechnic Institute awarded the Order of the Red Banner of Labor; holds a PhD degree in Technology

Experience over the last 5 years:
» 2015–present: Chairman of the Management Board – General Director of RusHydro
» 2009–2015: First Deputy Chairman of the Management Board of JSC SO UES

Positions held in collective governing bodies:
» member of the Board of Directors of Global Sustainable Energy Partnership
» member of the Board of Directors at Rosneft
» chairman of the Supervisory Board of Association Hydropower of Russia
» member of the Management Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
» member of the Board of Trustees of the National Research University Moscow Power Engineering Institute
» deputy Chairman of the Supervisory Board of NP Scientific and Technical Council of the Unified Energy System

ANDREY SHISHKIN
Non-Executive Director

Born in 1959

Education, academic degree, academic rank:
Graduated from the Gubkin Moscow Institute of Petrochemical and Gas Industry with a degree in Industrial Heat and Power Engineering

Experience over the last 5 years:
» 2016–present: President, Chairman of the Management Board at Bashneft
» 2015–present: General Director at RN-Assets
» 2012–present: Vice President for Energy, Localization and Innovation;
since 2015: member of the Management Board at Rosneft

Positions held in collective governing bodies:
» member of the Board of Directors at RN-Assets
» deputy Chairman of the Board of Directors at Bashneft
» chairman of the Board of Directors at Okha CHP

ALEXEI CHEKUNKOV
Non-Executive Director
Representative of the Russian Federation

Born in 1980

Education, academic degree, academic rank:
Graduated from Moscow State Institute of International Relations with a degree in Economics

Experience over the last 5 years:
» 2014–present: Chief Executive Officer of the Far East and Baikal Region Development Fund
» 2013–2014: First Deputy CEO at Kada-Neftegaz

Positions held in collective governing bodies:
» member of the Board of Directors at Skolkovo Ventures
» member of the Board of Directors at Yoolzhod
» member of the Supervisory Board at ALROSA
» chairman of the Supervisory Board at the Far East Investment and Export Agency

Short biographies of members of the Board of Directors prior to June 27, 2018
**Board of Directors’ report**

In 2018, the Board of Directors held 18 meetings, including seven meetings in person, and considered 169 matters. In 2018, the attendance at meetings of the Board of Directors stood at 90% of all meetings held during the year.

### Attendance in 2018 by director

<table>
<thead>
<tr>
<th>Full name</th>
<th>Meetings attended/total</th>
<th>Attendance, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artem Avetisyan</td>
<td>13/18</td>
<td>72</td>
</tr>
<tr>
<td>Maxim Bystrakov</td>
<td>17/18</td>
<td>94</td>
</tr>
<tr>
<td>Pavel Grachev</td>
<td>18/18</td>
<td>100</td>
</tr>
<tr>
<td>Sergey Ivanov</td>
<td>17/18</td>
<td>94</td>
</tr>
<tr>
<td>Vyacheslav Kravchenko</td>
<td>15/18</td>
<td>83</td>
</tr>
<tr>
<td>Vyacheslav Pivorovarov</td>
<td>15/18</td>
<td>83</td>
</tr>
<tr>
<td>Mikhail Rasstrigin (starting June 27, 2018)</td>
<td>7/8</td>
<td>88</td>
</tr>
<tr>
<td>Nikolay Rogakev</td>
<td>18/18</td>
<td>100</td>
</tr>
<tr>
<td>Yury Troshnev</td>
<td>17/18</td>
<td>94</td>
</tr>
<tr>
<td>Pavel Livinsky (starting June 27, 2018)</td>
<td>8/8</td>
<td>100</td>
</tr>
<tr>
<td>Sergey Shalin</td>
<td>17/18</td>
<td>94</td>
</tr>
<tr>
<td>Andrey Shakhin</td>
<td>16/18</td>
<td>89</td>
</tr>
<tr>
<td>Nikolay Shulginov</td>
<td>18/18</td>
<td>100</td>
</tr>
<tr>
<td>Alexei Chekunov (member until June 27, 2018)</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>Nikolay Podguzov (member until June 27, 2018)</td>
<td>5/10</td>
<td>50</td>
</tr>
</tbody>
</table>

**Key agenda items reviewed by the Board of Directors in the reporting year**

- **Approval of the changes to the Group’s Long-term Development Program for 2018-2022**: Adjustments to the Long-term Development Program provide for additional measures to upgrade the thermal power infrastructure in the Far Eastern Federal District, improve the environmental management system, roll out intelligent systems and digital technology, and enhance the staffing system.
- **Approval of the updated import substitution roadmap for the period up to 2025**: Developed a set of measures aimed at scheduled step-by-step substitution of imported products with those of Russian origin having similar specifications and usability.
- **Approval of RusHydro’s Policy on Rotation of Auditors**: The Policy on Rotation of Auditors governs the auditor selection procedure and the rules for altering the composition of the audit team.
- **Approval of the termination of RusHydro and its subsidiaries’ participation in the authorized capital of PJSC Inter RAO UES**: Approved the sale of 5,137,669,622 shares of PJSC Inter RAO UES (4.915% of the authorized capital) to JSC Inter RAO Capital at the price of RUB 3.3463 per share.
- **Dividends for 2017**: The Board recommends paying out dividends in the amount of RUB 0.0263535 per share, or 50% of the IFRS net profit for 2017.
- **Stable development of the Company**: The Group’s investment program for 2019-2023 provides for an estimated RUB 382.9 bn to be spent on commissioning around 1.4 GW of new power capacity, 565 Gcal/h of heat capacity, as well as on building and refurbishing more than 130 km of heat and 7,600 km of electric power supply networks.
- **Approval of RusHydro Group’s New Environmental Policy through 2025**: Set new KPIs, including those seeking to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions, and prevent species elimination.
- **Development of the Far Eastern energy sector**: Key projects under the Program include the construction of Artymovskaya TPP-2, Khabarovskaya TPP-4, the second stage of YaksutskayaGRES-2, a TPP in Pepsi, the upgrade of Vladivostokskaya TPP-2 and Komomoiskaya TPP-2, and commissioning of the fourth hydropower unit of Ust-Srednekanskya HPP.
- **Approval of the contributions to JSC Chukotenergo’s authorized capital for the implementation of the initial construction stage of two 110 kV high-voltage power lines Pevek – Bilibino**: The construction of high-voltage power lines in Chukotka due to the decommissioning of the power units at Bilibino TPP, which has reached the end of its service life. Financing is expected to be provided in the amount of RUB 13 bn from the federal budget and RUB 6.3 bn from the Company’s funds.

See the minutes of the previous Board of Directors meetings here: [www.rushydro.ru](http://www.rushydro.ru)
Assessment of the Board of Directors performance

Independent assessment

In 2018, an independent assessment of the Company’s Board of Directors was carried out by LLC PricewaterhouseCoopers Advisory, a world-renowned external independent consultant. The Board of Directors’ performance was assessed from April to June 2018 via a survey among the directors, individual interviews with the directors and several key managers of the Company, as well as through reviewing the by-laws that govern the activities of the Board of Directors and its Committees, the meeting minutes of the Board of Directors and Committees, and other relevant materials. The scope of the assessment included:

» Overall assessment of the Board of Directors’ performance;
» Assessment of each Committee’s performance;
» Performance assessment for the Chairman of the Board of Directors and Senior Independent Director;
» Individual assessment of the Board of Directors members.

The previous independent assessment was done in 2016 by the Independent Directors Association, whose recommendations led to many improvements in the work of the Board of Directors, including:

» Approval of a number of strategic decisions, including in relation to the JSC RAO ES East debt refinancing;
» The Board of Directors regularly monitors the development and implementation of RusHydro subsidiaries’ business plans based on RusHydro Group’s Consolidated Business Plan;
» The position of Senior Independent Director was introduced;
» Board of Directors’ meetings scheduling was improved.

The Board of Directors’ meetings are conducted in person. The meetings of the Board of Directors feature active discussions on the agenda items and resolutions where new ideas and diverse opinions are welcome. The most important matters pertaining to the operations of the Company and its subsidiaries are normally discussed at the meetings of the Board of Directors that are held in person.

The directors ask the management hardball questions and provide constructive criticism on proposed resolutions, which enables well-informed decision-making.

The Board of Directors includes the main stakeholders of the Company. The Board of Directors also maintains a balance between ensuring succession and systematically bringing in new members.

THE RESULTS OF THE INDEPENDENT ASSESSMENT

The Company largely complies with the principles and recommendations of both the Russian and British corporate governance codes. There are some key strengths of RusHydro’s Board of Directors:

collectively, the members of the Board of Directors possess a strong set of competencies, expertise, skills and leadership qualities that contribute to their efficient performance.

the Board of Directors and the Audit Committee include a director with experience and expertise in preparation, analysis, assessment and audit of accounting (financial) statements.

the Board of Directors plays an important and active role in the work of the Board of Directors and its Committees.

Self-assessment

RusHydro conducted an annual assessment of the Board of Directors performance to evaluate the contribution of the Russian Federation representatives to the Company’s operations and to the implementation of the development strategy. The assessment was based on the methodology for individual assessment of the Board of Directors members in joint stock companies partially owned by the government, as approved by the Federal Agency for State Property Management (RosimUSHchestvo), and was carried out in the Company’s personal account on RosimUSHchestvo’s inter-agency portal using questionnaires for members of the Board of Directors. As a result, the Board of Directors was confirmed.

Areas for development

In order to continue improving its efficiency, the Board of Directors is going to take the following key actions based on the assessment results:

» hold a strategic session with external experts to discuss the strategy, its implementation and possible updates (in light of systematic renewal of the Board of Directors);
» expand the list of speakers invited to the meetings of the Board of Directors with members of the Company’s management and external experts;
» hold comprehensive Board of Directors discussions addressing the matters of risk appetite and key risk management as they pertain to the Company’s operations;
» maintain and expand the practice of the Board of Directors members and independent directors in particular attending the most important investor and analyst engagement events.

Liability insurance

Since 2007, RusHydro has provided liability insurance for the members of the Board of Directors and the Management Board, as well as for the persons in the capacity of sole executive bodies at the Company’s subsidiaries and branches and for those managing the Company’s units and subsidiaries. In a tender to select a provider of directors and officers (D&O) civil liability insurance for 2018, JSC SOGAZ was chosen based on its ability to provide the most reliable and comprehensive coverage when it comes to this type of insurance. The insurer selection process complied with the requirements of the Company’s by-laws and Federal Law of the Russian Federation No. 223-FZ On Procurement of Goods, Works, Services by Certain Types of Legal Entities dated July 18, 2011.

The amount of coverage is RUB 10,604,715,160 (USD 178,100,000 at the rate of the Bank of Russia as at July 31, 2017). In addition, the independent directors’ liability insurance is insured for RUB 136,950,280 (USD 2,300,000 at the rate of the Bank of Russia as at July 31, 2017). The insurance premium amounted to RUB 13,552,825.97 (USD 227,611.80 at the rate of the Bank of Russia as at July 31, 2017).

The insurance policy covers:

» property interest of the insured related to other persons’ claims for damages arising from the insured person’s (alleged, supposed) wrongdoing (error, omission, improper performance, etc.);
» property interests of the Company and/or any subsidiary related to other persons’ claims that were initially brought against the insured;
» property interests of the Company and/or any subsidiary related to any claims made by other persons.

1 The word independent means the consultant has no ties to the Company.
Committees of the Board of Directors

RusHydro’s Board of Directors has six committees:

Audit Committee; Nomination and Compensation Committee; Strategy Committee; Investment Committee; Committee on Energy Development of the Far East; Committee on Reliability, Energy Efficiency and Innovation.

Members of the Board of Directors

Vyacheslav Pivovarov
(Chairman of the Committee)
Sergey Ivanov
Maxim Bystrov

Committee competencies

The Committee is designed to provide recommendations on composition and set of skills of the Company’s governing bodies, and recommend tools to enhance efficiency and transparency of the remuneration system. Its primary objective is to review relevant items on a preliminary basis and draft recommendations on matters reserved to the remit of the Board of Directors.

Key performance results and recommendations issued to the Board of Directors

- Reviewed the Company’s auditor candidacy and recommended it for approval.
- Recommended approval of a standard to control implementation of the Group’s Long-Term Development Program.
- Recommended approval of RusHydro’s Insurance Program for 2019.
- Approved a methodology for Assessment of RusHydro’s Corporate Governance Framework.
- Provided corporate governance assessment results with a focus on internal audit review.
- Recommended approval of the annual report.
- Recommended approval of the annual financial (accounting) statements.
- Assessed the internal audit system.
- Assessed the efficiency of external audit for 2017.
- Recommended approval of the Report on Compliance with the Company’s Information Policy.
- Reviewed annual KPI targets for the Management Board.
- Reviewed report on achievement of the Management Board’s KPI for 2017.
- Reviewed KPI targets for the Management Board for 2018 and 2019, and KPI targets under the Company’s Long-Term Incentive Plan.
- Reviewed annual KPI of the Management Board for 2019
- Reviewed report on the management of the Management Board’s KPI for 2017 and Q1-Q3 2018.
- Oversaw external independent assessment of the Board of Directors’ performance.
- Reviewed draft internal regulations on the assessment of performance of the Board of Directors and its committee.

Nomination and Compensation Committee

Members of the Board of Directors

Independent members of the Board of Directors

Vyacheslav Pivovarov
(Chairman of the Committee)
Sergey Ivanov
Maxim Bystrov

Key performance results and recommendations issued to the Board of Directors

- Reviewed report on achievement of the Management Board’s KPI for 2017.
- Reviewed KPI targets for the Management Board for 2018 and 2019, and KPI targets under the Company’s Long-Term Incentive Plan.
- Reviewed report on achievement of the Management Board’s KPI for 2017.
- Reviewed report on the management of the Management Board’s KPI for 2017 and Q1-Q3 2018.
- Oversaw external independent assessment of the Board of Directors’ performance.
- Reviewed draft internal regulations on the assessment of performance of the Board of Directors and its committee.

Committee competencies

The Committee is designed to provide recommendations on composition and set of skills of the Company’s governing bodies, and recommend tools to enhance efficiency and transparency of the remuneration system. Its primary objective is to review relevant items on a preliminary basis and draft recommendations on matters reserved to the remit of the Board of Directors.

- Reviewed report on achievement of the Management Board’s KPI for 2017.
- Reviewed KPI targets for the Management Board for 2018 and 2019, and KPI targets under the Company’s Long-Term Incentive Plan.
- Reviewed annual KPI targets for the Management Board for 2018 and 2019, and KPI targets under the Company’s Long-Term Incentive Plan.
- Reviewed report on achievement of the Management Board’s KPI for 2017.
- Reviewed report on the management of the Management Board’s KPI for 2017 and Q1-Q3 2018.
- Oversaw external independent assessment of the Board of Directors’ performance.
- Reviewed draft internal regulations on the assessment of performance of the Board of Directors and its committee.
Strategy Committee

Members of the Board of Directors

<table>
<thead>
<tr>
<th>Independent members of the Board of Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavel Grachev                              17/17</td>
</tr>
<tr>
<td>Sergey Ivanov                              10/17</td>
</tr>
<tr>
<td>Vyacheslav Pivovarov                       14/17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Members of the Board of Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikolay Rogalev                  17/17</td>
</tr>
<tr>
<td>Sergey Shishin                   17/17</td>
</tr>
</tbody>
</table>

Committee members

<table>
<thead>
<tr>
<th>Members of the executive bodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrey Gabov                    17/17</td>
</tr>
<tr>
<td>Yevgeniy Stolyarov              17/17</td>
</tr>
<tr>
<td>Andrey Gabov                    7/17</td>
</tr>
<tr>
<td>Nikolay Shulgakov               7/17</td>
</tr>
</tbody>
</table>

Committee competencies

The Committee is designed to ensure efficient performance of the Board of Directors in strategic areas. The Committee determines the Group’s strategic development priorities, approves the Company’s development strategy and long-term development program (including review of the strategy implementation reports), provides recommendations on the dividend policy, makes decisions on the Company’s investments in and divestments from other organizations, considers authorized capital increases and other share offering and purchase matters, and reviews the Group’s financial and valuation models.

Key performance results and recommendations issued to the Board of Directors

- Recommended approval of a resolution to divest from PJSC Inter RAO.
- Recommended approval of the property disposal deal between JSC RAO ES East and PJSC Sakhalinenergo.
- Set preliminary additional terms and conditions for participation in the construction of Tayshet Aluminium Smelter (the project was put on hold due to the US sanctions).
- Provided recommendations on report regarding the finalization of initiatives to refinance the debt of JSC RAO ES East.
- Provided recommendations on information about the efficiency of forward contracting and progress against RusHydro’s Value Growth Plan through 2021.
- Recommended approval of an investment project to construct two 110 kV single-circuit Pevek-Bilibino power lines.
- Provided recommendations on a report comparing the technological advancement and innovation KPI of RusHydro Group against the leading peers.
- Recommended approval of a resolution to divest from Boguchanskaya HPP Construction Organizer, Boguchanskaya HPP Construction Customer, Small HPPs of Aba, Verkhne-Nar.
- Provided recommendations on the dividend policy, makes decisions on the Company’s investments in and divestments from other organizations, considers authorized capital increases and other share offering and purchase matters, and reviews the Group’s financial and valuation models.
- Approved RusHydro’s draft investment program for 2019-2028 and draft amendments to RusHydro’s investment program for 2018-2027.
- Pre-approved the Group’s Consolidated Business Plan (including consolidated investment program) for 2018-2022.
- Pre-approved KPI targets for the Management Board for 2018, and KPI targets under the second cycle of the Company’s Long-Term Incentive Plan for 2018-2020.
- Pre-approved distribution of the Company’s profit (loss) for 2017 and recommended that the Annual General Meeting of Shareholders approve the same.
- Approved the amount of dividends paid for the Company’s ordinary shares for 2017 at RUB 0.026335 per share.

Investment Committee

Members of the Board of Directors

<table>
<thead>
<tr>
<th>Independent members of the Board of Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxim Bystrov (Chairman of the Committee)       13/13</td>
</tr>
<tr>
<td>Vyacheslav Pivovarov                           10/13</td>
</tr>
<tr>
<td>Sergey Ivanov                                 10/13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Members of the Board of Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikolay Rogalev                  13/13</td>
</tr>
<tr>
<td>Alexei Chakunov                  8/13</td>
</tr>
<tr>
<td>Members of the executive bodies</td>
</tr>
<tr>
<td>Andrey Kazachenkov               13/13</td>
</tr>
<tr>
<td>Sergey Kiryov                    13/13</td>
</tr>
<tr>
<td>Viktor Khemarin                  13/13</td>
</tr>
</tbody>
</table>

Committee members

<table>
<thead>
<tr>
<th>Committee members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mikhail Bychkov    4/13</td>
</tr>
<tr>
<td>Andrey Gabov       7/13</td>
</tr>
<tr>
<td>Sergey Zhuravlev    13/13</td>
</tr>
<tr>
<td>Denis Milyuskin     13/13</td>
</tr>
<tr>
<td>Pavel Snikars       7/13</td>
</tr>
</tbody>
</table>

Committee competencies

The Committee is designed to preview new investment projects and programs, and contribute to the enhancement of the Company’s investment policy.

Key performance results and recommendations issued to the Board of Directors

- Pre-approved updated versions of the Company’s Business Plan and investment program for 2018.
- Pre-approved the updated version of the Company’s Consolidated Business Plan (including consolidated investment program) for 2018.
- Pre-approved updated KPI targets for the Company’s Management Board for 2018.
- Recommended approval of RusHydro’s business plan and Consolidated Business Plan for 2019, including RusHydro’s investment program and consolidated investment program.
Committee on Energy Development of the Far East

Members of the Board of Directors

- Pavel Grachev (Chairman of the Committee) 7/7
- Yury Turyev (Chairman of the Committee) 0/7
- Vyacheslav Kravchenko 3/7
- Aleksei Chukunkov 7/7
- Members of the executive bodies
  - Sergey Vasilyev (since April 4, 2018) 4/7
  - Andrey Kazachenkov 7/7
  - Sergey Tolstoguzov (until April 4, 2018) 0/7
- Committee members
  - Igor Zadvornov 7/7
  - Denis Konstantinov 4/7
  - Aleksandr Molskiy 5/7
  - Alexei Pyatigor (since August 9, 2018) 2/7
  - Andrey Kazachenkov 7/7
  - Sergey Turyev (since August 9, 2018) 2/7
  - Mikhail Kolesnikov (until August 9, 2018) 3/7
  - Sergey Lebedev (since December 6, 2018) 1/7
  - Leonid Petukhov (since December 6, 2018) 1/7

Committee competencies

The Committee is designed to ensure efficient performance of the Board of Directors in developing the power industry of the Far Eastern Federal District of Russia within the scope of responsibility of the Company and its subsidiaries. Among other things, the Committee is responsible for determining the Company’s priority areas in the Far East, including by considering matters related to the consolidation of power assets in the Far East, growth of energy exports to the Asia-Pacific, and power supply to the consumers in the Far East.

Key performance results and recommendations issued to the Board of Directors

- Recommended approval of contributions to the authorized capital of JSC Chukotenergo for the construction of two 110 kV single-circuit Pevek-Billibino power lines in an amount not exceeding RUB 18 bn, with up to RUB 5 bn coming from RusHydro and RUB 10 bn coming from the Government in the form of contributions to the authorized capital of RusHydro.
- Pre-approved the loan agreement between RusHydro and the Far East and Baikal Region Development Fund in the amount of RUB 5 bn to finance the construction of off-site facilities of Sakhalinskaya GRES-2 for a period of eight years and an interest rate of 5% per annum.
- Approved an increase in the price of the General Contractor Agreement (Construction of Sakhalinskaya GRES-2: Key Production Capacities. On-Site Facilities. Stage 1) by RUB 3.5 bn to RUB.

Committee on Reliability, Energy Efficiency and Innovation

Members of the Board of Directors

- Nikolay Rogalov (Chairman of the Committee) 7/7
- Vyacheslav Kravchenko 4/7
- Alexei Chukunkov 3/7
- Committee members
  - Oleg Barkov (since April 4, 2018) 6/7
  - Yuriy Vishnevsky 6/7
  - Dmitriy Gvozdev (since August 9, 2018) 4/7
  - Sergey Zhuravlev (since August 9, 2018) 3/7
  - Mikhail Fedorov 3/7
  - Elena Belchenko (until August 9, 2018) 3/7
  - Roman Gromov (until April 4, 2018) 1/7
- Members of the executive bodies
  - Boris Bogush 7/7
  - Georgiy Rzhinashvili 7/7
  - Kirill Frolov 7/7
  - Dmitriy Gvozdev (since April 4, 2018) 5/7
  - Sergey Tolstoguzov (until April 4, 2018) 0/7
  - Nikolay Karpukhin (since August 7, 2018) 1/7

Committee competencies

The Committee is designed to ensure efficient performance of the Board of Directors in the realms of the Company’s Technical Policy, reliable and safe operation of hydraulic facilities, energy efficiency, innovation and environmental policies, and other areas reserved to the remit of the Committee.

Key performance results and recommendations issued to the Board of Directors

- Approved the proposal of the Company’s Management Board to start levelling the station node building at Zaporskaya PSPP-2.
- Prepared a resolution to build an inventory of intellectual property rights of RusHydro Group, with the deadline set for November 30, 2018.
- Drafted a resolution for the Board of Directors to approve RusHydro Group’s Intellectual Property Rights Management Program.

Corporate Secretary

NATALYA KOVALEVA

Born in 1972

Education, academic degree:
In 1996, graduated from Irkutsk State University with a degree in Law

Experience over the last 5 years:
- 2016–present: Corporate Secretary, RusHydro
- 2016–present: Deputy Head of Corporate Governance and Property Management, RusHydro
- 2010–2015: Head of Corporate Governance, PJSC MOESK

Positions held in collective governing bodies as of December 31, 2018:
- member of the Board of Directors at Blagoveschenskaya CHPP
- member of the Board of Directors at Boguchanskiy Aluminum Smelter
- member of the Board of Directors at PJSC DEK
- member of the Board of Directors at Malaya Dimitrovia
- member of the Board of Directors at SNRPG
- member of the Board of Directors at JSC Chuvashskaya Electricity Sales Company

Natalya Kovaleva has no stake in RusHydro’s authorized capital. She does not hold, either directly or indirectly, any ordinary shares of RusHydro and, consequently, did not buy or sell the Company’s shares during the reporting year, holds no shares in RusHydro’s subsidiaries.

No loans were issued by PJSC RusHydro or RusHydro Group companies to Natalya Kovaleva, Corporate Secretary of RusHydro.

The Corporate Secretary has no conflict of interest (including participation in the governing bodies of the Company’s competitors).
**EXECUTIVE BODIES**

The Management Board

Executive bodies are in charge of the day-to-day operations of the Company.

Powers of the Management Board and the Chairman of the Management Board – General Director are defined by Articles 18 and 19 of the Company’s Charter, respectively. Executive bodies’ competence include matters that are not reserved to the Company’s General Meeting of Shareholders and the Board of Directors.

On December 24, 2018, the Board of Directors elected Victor Khmarin, Deputy General Director for Resources and Prospective Development, as a new member of the Management Board. Victor Khmarin took office on January 16, 2019. His election was in line with the Company’s focus on resources and future development of RusHydro Group, including the implementation of the Long-Term Program for Replacement of Retired Capacities and Energy System Development in the Far East.

The Management Board’s powers include developing the Company’s business priorities and respective implementation plans and submitting them to the Board of Directors for review, reporting on KPI achievement and business plan implementation, approving budget parameters as regards income and expenditures, deciding on matters reserved to supreme governing bodies of the subsidiaries where the Company exercises the rights of the sole shareholder (participant), as well as approving (adjusting) KPI of the Company’s employees, and reviewing relevant implementation reports.

Powers of the Chairman of the Management Board – General Director include managing the Company’s day-to-day operations, approving internal regulations that are mandatory for all the Company’s employees, exercising employer functions, approving regulations on the Company’s branches and representative offices and appointing heads thereof, making transactions on behalf of the Company within the scope set out in laws and the Charter, arranging for accounting and reporting, arranging operations of the Management Board, as well as addressing other matters of the Company’s day-to-day operations that do not fall within the remit of the General Meeting of Shareholders, Board of Directors or Management Board.

**SERGEY KIROV**
Member of the Management Board, First Deputy General Director

**BORIS BOGUSH**
Member of the Management Board, First Deputy General Director – Chief Engineer

**NIKOLAY SHULGINOV**
Chairman of the Management Board – General Director

**ANDREY KAZACHENKO**
Member of the Management Board, First Deputy General Director

**GEORGE RIZHINASHVILI**
Member of the Management Board, First Deputy General Director

**VICTOR KHMARIN**
Member of the Management Board, Deputy General Director
Information on the Management Board members

NIKOLAY SHULGINOV
Chairman of the Management Board – General Director

Born in 1952

Education, academic degree, academic rank:
Sergo Ordzhonikidze Novocherkassk Polytechnic Institute awarded the Order of the Red Banner of Labor; holds a PhD in Engineering

Experience over the last 5 years:
- 2015–present: Chairman of the Management Board – General Director of JSC SO UES
- 2009–2015: First Deputy Chairman of the Management Board of JSC SO UES

Positions held in collective governing bodies as of December 31, 2018:
- member of the Board of Directors of Global Sustainable Energy Partnership
- member of the Board of Directors at Rosseti
- Chairman of the Supervisory Board of Association Hydropower of Russia
- member of the Supervisory Board of the Market Council Non-Profit Partnership
- member of the Executive Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
- member of the Board of Trustees of the National Research University Moscow Power Engineering Institute
- Deputy Chairman of the Supervisory Board of NP Scientific and Technical Council of the Unified Energy System

Year of election to the Management Board: 2010

Participation in the Board of Directors’ committees:
Strategy Committee of the Board of Directors of RusHydro (until August 7, 2018)

ANDREY KAZACHENKOV
Member of the Management Board, First Deputy General Director

Supervised units:
Unit of financial and corporate law management

Born in 1980

Education, academic degree, academic rank:
Graduated from Saint Petersburg State University of Engineering and Economics with a degree in Economics and Management at Mechanical Engineering Enterprises; Has an MBA from the University of Wisconsin-Madison, USA

Experience over the last 5 years:
- 2015–present: Advisor for the Chairman of the Management Board – General Director; member of the Management Board and First Deputy General Director of RusHydro
- 2012–2015: First Deputy Chairman of the Management Board, Deputy Chairman of the Management Board of PJSC FGC UES

Positions held in collective governing bodies as of December 31, 2018:
- Chairman of the Board of Directors at JSC RAO ES East
- member of the Board of Directors of JSC Hydroproject Institute
- member of the Board of Directors at JSC Far East Energy Management Company

Year of election to the Management Board: 2015

Participation in the Board of Directors’ committees:
Committee on Energy Development of the Far East of the Board of Directors of RusHydro, Investment Committee of the Board of Directors of RusHydro, Strategy Committee of the Board of Directors of RusHydro and Committee on Reliability, Energy Efficiency and Innovation of the Board of Directors of PJSC Rosseti

BORIS BOGUSH
Member of the Management Board, First Deputy General Director – Chief Engineer

Supervised units:
Production unit

Born in 1952

Education, academic degree, academic rank:
Graduated from Saratov State Technical University with a degree in Mechanical Engineering; Graduated from Russian Presidential Academy of National Economy and Public Administration with a degree in Management of Business / Organization Development

Experience over the last 5 years:
- 2009–present: Managing Director, Head of Business Unit “Production”; member of the Management Board; member of the Management Board – Chief Engineer; member of the Management Board, First Deputy General Director – Chief Engineer

Positions held in collective governing bodies as of December 31, 2018:
- member of the Supervisory Board of Association Hydropower of Russia
- member of the Board of Trustees of Soprichastnost charitable fund
- member of the Board of Directors of JSC Hydroproject Institute

Year of election to the Management Board: 2010

Participation in the Board of Directors’ committees:
Committee on Reliability, Energy Efficiency and Innovation of the Board of Directors of RusHydro

SERGEY KIROV
Member of the Management Board, First Deputy General Director

Supervised units:
Unit of sales, economic planning and investments

Born in 1976

Education, academic degree, academic rank:
Graduated from Perm State Agro-Technological University with a degree in Economics and Agricultural Production Management; Graduated from the Regional Interdisciplinary Retraining Center of Perm National Research Polytechnic University with a degree in Economics and Management

Experience over the last 5 years:
- 2010–present: Director of Economic Affairs; Deputy General Director on Economics, Investment and Procurement, member of the Management Board and First Deputy General Director
- 2010–2014: General Director of LLC RusHydro IT Service

Positions held in collective governing bodies as of December 31, 2018:
- member of the Board of Directors of JSC Hydroproject Institute

Year of election to the Management Board: 2015

Participation in the Board of Directors’ committees:
Investment Committee of the Board of Directors of RusHydro

As of December 31, 2018
Changes in the Management Board composition after the reporting date

VICTOR KHMARIN
Member of the Management Board, Deputy General Director
Supervised units: Resources and future development unit
Born in 1978
Education, academic degree, academic rank:
Graduated from Saint Petersburg State University with a degree in Law
Professional experience over the last five years:
> 2014: Deputy Director for Business Development, LLC Vita-X
> 2014–2015: Advisor to the First Deputy President – Chairman of the Management Board – Vice President, Department for work with clients of market sectors, PJSC VTB Bank
> 2015–present: Deputy General Director on Economics, Investment and Procurement, Deputy General Director for Resources and Prospective Development, member of the Management Board, Deputy General Director at RusHydro
Year of election to the Management Board: 2019
Participation in the Board of Directors’ committees:
Investment Committee of the Board of Directors of RusHydro

GEORGE RIZHINASHVILI
Member of the Management Board, First Deputy General Director
Supervised units: Strategy and innovation unit
Born in 1981
Education, academic degree, academic rank:
Graduated from Moscow State University with a degree in Economics; holds a PhD in Economics
Professional experience over the last five years:
> 2009–present: member of the Management Board and Deputy Chairman of the Management Board; member of the Management Board and First Deputy General Director of RusHydro
> 2016–present: Chairman of the Management Board of the Moscow State University Faculty of Economics Development Fund
Positions held in collective governing bodies:
> member of the Board of Trustees of Moscow State University Faculty of Economics
> member of the Board of Trustees of Soprichastnost charitable fund
> member of the Board of Directors of JSC Hydroproject Institute
Year of election to the Management Board: 2009
Participation in the Board of Directors’ committees:
Committee on Reliability, Energy Efficiency and Innovation of the Board of Directors of RusHydro, Strategy Committee of the Board of Directors of RusHydro and Strategy Committee the Board of Directors of Rosseti

VLADIMIR MARKIN
Member of the Management Board, First Deputy General Director
Supervised units: Administrative unit
Born in 1956
Education, academic degree, academic rank:
Graduated from Moscow State University with a degree in Journalism;
Graduated from the Institute of Economics and Culture with a degree in Law
Professional experience over the last five years:
> 2011–2016: Head of Media Relations Directorate of the Investigative Committee of Russia
> 2016: First Deputy General Director; member of the Management Board and First Deputy General Director of RusHydro
Positions held in collective governing bodies:
> Head of Security and Fan Relations Committee of Football Union of Russia
Year of election to the Management Board: 2017

Additional information on the members of the Management Board

In the reporting period, RusHydro’s executive bodies had no conflict of interest (including participation in the governing bodies of the Company’s competitors).
No decisions on the early termination of powers of the Management Board members were made in the reporting period. Nikolay Shulginov’s appointment terminates on September 14, 2020, in accordance with his employment contract. Other RusHydro’s Management Board members have no fixed terms of appointment.

In the reporting period, members of the Management Board received no loans from the Company or RusHydro Group.
Boris Bogush (the Management Board member) holds 0.003843% of RusHydro’s ordinary shares.
George Rizhinashvili (the Management Board member) no longer holds 0.01286% of RusHydro’s ordinary shares.
Members of the Management Board do not indirectly hold any of RusHydro shares or own shares/stakes in any of RusHydro’s subsidiaries.

2 Left office on February 24, 2019 pursuant to the resolution of the Board of Directors dated February 19, 2019.
Report on the Management Board’s performance

In 2018, RusHydro managed to secure strong progress, which helped underpin its solid performance. RusHydro achieved its target KPI thanks to the Company’s team governed by the Management Board in close cooperation with the Board of Directors.

To protect the rights of investors and shareholders, the Company continued to implement its key strategic goals, including safe operation of the Company’s production facilities, value growth and investment returns to the shareholders, as well as the enhancement of corporate governance and social and environmental responsibility mechanisms.

In 2018, the Company approved a number of internal regulations on Company’s governing bodies and other by-laws (regulations and policies).

In 2018, the Management Board held 68 meetings, including 22 in person, and reviewed 454 matters on the day-to-day operations of the Company, including preliminary consideration of the matters submitted for the Board of Directors’ review.

In 2018, RusHydro’s corporate governance system for 2017 was assessed, including the executive bodies’ performance. The assessment report included the following recommendations:

- develop and approve by the Board of Directors the Company’s executive management succession plan;
- consider including into the contracts signed with members of the executive bodies and other key officers the provision which will enable the Company to reclaim funds wrongfully obtained by members of the executive bodies and other key officers in case they commit financial statement fraud or other misconduct aimed at formal achievement of the Company’s KPI and performed to the detriment of the shareholders’ long-term interests.

The Board of Directors evaluates the performance of the Management Board and its Chairman by reviewing the following matters:

- the Company’s business plan implementation;
- the Company’s Consolidated Business Plan implementation;
- RusHydro’s KPI achievement;
- corporate governance assessment;
- the report on the Management Board’s performance.

Items reviewed by RusHydro’s Management Board in 2018, %

<table>
<thead>
<tr>
<th>Item</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidiary management</td>
<td>25.0</td>
</tr>
<tr>
<td>Implementation of the Company’s projects</td>
<td>19.6</td>
</tr>
<tr>
<td>Business planning and investment</td>
<td>12.5</td>
</tr>
<tr>
<td>Approval of by-laws</td>
<td>4.0</td>
</tr>
<tr>
<td>Performance management and KPI</td>
<td>3.5</td>
</tr>
<tr>
<td>Other</td>
<td>25.4</td>
</tr>
</tbody>
</table>

AUDIT AND CONTROL

RusHydro controls its financial and business operations by using a combination of internal regulations, operational practices, procedures, and methodologies involving the following key parties: Internal Audit Commission; Independent Auditor; Audit Committee of the Board of Directors of RusHydro; Internal Audit Service.

The key principles, goals, objectives, methods, and processes of the control framework are set forth in the following documents approved by RusHydro’s General Meeting of Shareholders and Board of Directors:

- Regulations on Internal Audit Commission;
- Corporate Governance Code;
- Internal Control and Risk Management Policy;
- Internal Audit Policy;
- Regulations on the Audit Committee of the Board of Directors;
- Code of Corporate Ethics;
- Anti-Corruption Policy.

RusHydro’s Code of Corporate Ethics sets forth the ethical standards and rules of conduct for employees and members of the Company’s Board of Directors and seeks to improve their job performance. The key principles and ethical standards that employees, managers, and members of the Board of Directors must comply with are outlined in Clauses 2 and 4 of the Code. Provisions of the Code are introduced through the adoption and implementation of in-house rules and regulations, including:

- Anti-Corruption Policy;
- Conflict of Interest Regulations.

The Company’s Internal Audit Commission reports to the General Meeting of Shareholders. The Internal Audit Commission’s opinion is submitted to the Audit Committee of the Board of Directors of RusHydro. The Internal Audit Commission’s opinion issued after the audit of the annual report, RAS financial statements and report on the Company’s related-party transactions is a mandatory document that must be submitted to the General Meeting of Shareholders.

An Auditor’s opinion is submitted to the Board of Directors’ Audit Committee and to the Internal Audit Commission. The Audit Committee discusses the auditor’s plan of annual audits of RusHydro Group.

The Board of Directors represented by its Audit Committee is responsible for the functional management of the Internal Audit Service, including approval of the annual schedule of control activities and quarterly reports on adherence to that schedule.

The documents approved by general meeting of shareholders are available on the Company’s website at www.rushydro.ru

The documents approved by Board of directors are available on the Company’s website at www.rushydro.ru

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1. Approved by Board of Directors resolution of April 7, 2016.
Internal Audit Commission

The Internal Audit Commission is a permanent body responsible for the monitoring of the Company's financial and business operations. The Commission consists of five elected members. The Commission’s opinion on the audit results was submitted to the Annual General Meeting of Shareholders. The audit confirmed that the data contained in the reports and financial documents of the Company were reliable, the accounting and financial reporting functions were performed in compliance with applicable laws and internal regulations, and financial and business operations were conducted in the best interests of the Company and its shareholders. The opinion also confirms the accuracy of data contained in the Company’s Annual Report and report on interested-party transactions consummated in 2018.

There were no changes in the composition of the Internal Audit Commission in 2018.

Members of the Internal Audit Commission

<table>
<thead>
<tr>
<th>Members</th>
<th>Primary employment</th>
<th>Nominated by</th>
<th>Shareholding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tatyana Zobkova (Chair of the Internal Audit Commission)</td>
<td>Deputy Director of the Department of Corporate Governance, Price Environment and Control in the Energy Sector of the Russian Ministry of Energy</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Natalia Annikova</td>
<td>–</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Igor Repin</td>
<td>Deputy Executive Director, Association of Institutional Investors</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Marina Kostina</td>
<td>Deputy Director of the Corporate Governance Department of the Russian Ministry of Economic Development</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Dmitry Simochkin</td>
<td>Head of Department, Federal Agency for State Property Management</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
</tbody>
</table>

Auditor

RusHydro’s accounts (financial statements) prepared in accordance with Russian and international standards are audited on an annual basis. The auditor responsible for the independent audit of RusHydro’s RAS and IFRS accounts (financial statements) for 2018 was selected through an open tender process.

RusHydro’s auditor was selected in a competitive process pursuant to Article 5 of Federal Law No. 307-FZ of December 30, 2008 On Auditing, Federal Law No. 44-FZ of April 5, 2013 On the Contract System in the Federal and Municipal Procurement of Goods, Works and Services, the Charter, and internal documents of RusHydro. Following the tender procedures, AO PricewaterhouseCoopers Audit (PwC Audit: 10, Butyrsky Val, 125047, Moscow) was declared the preferred bidder as was approved by resolution of RusHydro’s General Meeting of Shareholders of June 27, 2018.

PwC Audit is a member of self-regulating organization of auditors Russian Union of Auditors (Association). Number in the Register of Auditors: principal number of registration entry 11603050547.

For the full text of Internal Audit Commission’s opinion on the audit of financial and business operations for 2018, see Appendix No. 17.


Internal Audit Service

The key objective of RusHydro’s internal audit function is to assist the Board of Directors and executive bodies of RusHydro Group in enhancing the Group’s management efficiency and improving its operations, including by adopting a systematic and consistent approach to the analysis and evaluation of the risk management, internal control and corporate governance systems.

The Internal Audit Service is RusHydro’s standalone business unit that reports to the Board of Directors through the Audit Committee and has an administrative reporting line to the Chairman of the Management Board – General Director of RusHydro. The Head of the Internal Audit Service was approved by resolution of RusHydro’s Board of Directors.

The Internal Audit Service has the following objectives and functions:

- to conduct regular audits of business units, Company’s branches/subsidiaries, processes, lines of business, projects of the Company/subsidiaries, collect and analyze audit evidence for an independent assessment and expression of opinion on the reliability and effectiveness of the:
  - internal control system;
  - risk management system;
  - corporate governance system;
- to liaise with the Audit Committee of the Company’s Board of Directors;
- to liaise with local executive authorities of the Russian Federation, Accounts Chamber of the Russian Federation, the Company’s Internal Audit Commission, and other supervisory bodies in connection with internal control issues and in the course of audits and inspections of the Company or its subsidiaries conducted by such bodies.

The general principles of, and approaches to the Company’s internal audit system are set forth in the Internal Audit Policy approved by RusHydro’s Board of Directors. The Policy is aligned with RusHydro’s Corporate Governance Code, Methodological Guidelines and Instructions of the Federal Agency for State Property Management and is designed, inter alia, to contribute to the compliance of RusHydro’s Internal Audit Service with the International Professional Standards of Internal Audit.

In 2018, the Internal Audit Service worked to update internal regulations applicable to the Internal Audit Service and Audit Committee, and to this end:

- updated the Regulations on the Audit Committee of the Board of Directors;
- updated the Regulations on the planning and implementation of control activities of the Internal Audit Service;
- updated the Regulations on the Internal Audit Service;
- developed and implemented the methodology of annual independent assessment of the corporate governance system by the Company’s Internal Audit Service.
The schedule of control activities is approved by the Audit Committee on an annual basis and defines the priorities of the internal audit work subject to RusHydro Group’s objectives, resources available, and risk-based approach to control activities.

The control activities involved an assessment of effectiveness of internal controls over RusHydro Group’s activities aimed at ensuring reliable and safe operation of RusHydro Group’s facilities and the stable development of electricity generation, including:
- implementation efficiency of investment projects involving construction of new generation facilities;
- R&D efficiency of the Company’s subsidiaries (RusHydro Group institutes).

In 2018, the Internal Audit Service assessed the Company’s system of internal control, risk management, corporate governance, and non-core asset management. The Board of Directors reviewed the Internal Audit Service’s assessment of the internal control, risk management and corporate governance systems of the Company and recommendations on their improvement.

The Internal Audit Service submits its quarterly report on the control activities to the Audit Committee of the Company’s Board of Directors. The report describes key/system weaknesses identified in RusHydro Group’s internal control system and gives recommendations on possible improvements.

The results of the control activities carried out by the Internal Audit Service are used by RusHydro Group’s management to design and roll out a corrective action plan to address the identified gaps, improve the internal control system efficiency, and avoid repeated violations. The Internal Audit Service is also involved in the coordination and follow-up control of corrective actions. Corrective actions taken after inspections by supervisory authorities are monitored in a similar manner.

The Internal Audit Service is also responsible for the liaison with supervisory authorities, if and when examinations and inspections are carried out at RusHydro Group. In 2018, the Internal Audit Service worked with supervisory authorities (Accounts Chamber of the Russian Federation, Prosecutor General’s Office, and Russia’s Ministry of Energy) in the course of nine audits conducted by them.

In accordance with the approved Internal Audit Quality Assurance and Improvement Program, in order to ensure adequate control and assessment of the internal audit function and to identify improvement areas, the Internal Audit Service conducted an annual self-assessment of the internal audit function based on which the Audit Committee recognized that the internal audit function performed by the Company’s Internal Audit Service meets the relevant requirements.

Internal audit system development plans

In 2019, further steps will be taken to enhance the Company’s internal audit function, including:
- update of the regulatory framework of the Internal Audit Service in compliance with the International Professional Practices Framework (IPPF);
- further automation of RusHydro’s internal audit function, including in terms of follow-up control of corrective actions based on internal or external audits.

A third-party independent assessment of the Company’s internal audit system is planned to be held in 2019–2020 to ensure its compliance with the International Professional Practices Framework governing internal auditing.

Assessment of the efficiency of internal and external audit by the Audit Committee of RusHydro Board of Directors

On a quarterly basis, the Audit Committee reviews the report on the implementation of the schedule of control activities prepared by Head of the Internal Audit Service. Report describes material violations, flaws and gaps identified in the operations of RusHydro and its subsidiaries, includes information on substantial risks and issues of controls and corporate governance, and provides recommendations on remedial actions and improvement of internal controls.

According to feedback received on control activities, the internal audit function performed very effectively in 2018 in terms of identifying matters to be resolved in order to mitigate or eradicate any negative factors impairing the efficiency of RusHydro and its subsidiaries.

Throughout 2018, the Company’s auditor regularly reported to the Audit Committee on plans and results of the audits, shared its vision on important qualitative aspects of RusHydro’s accounting practices, including its accounting policy, estimates, and disclosures in financial statements, and raised matters that based on the auditor’s professional judgment are important for the oversight over the financial reporting process.

In 2018, The Audit Committee assessed the performance of the Company’s auditor (including the auditor’s reports) and the effectiveness of external audit as a process. Based on the assessment, the Audit Committee found the process to be effective. The Company’s auditor is unbiased and independent from RusHydro, has no conflict of interest or any circumstances that might challenge its independence. Materials that the external auditor prepares and presents to the Audit Committee are informative and enable the Audit Committee to control the quality of the auditor’s performance.
Anti-corruption efforts

RusHydro Group’s anti-corruption framework is aligned with the laws of Russia in order to reflect the national policy in internal measures that the Group takes to combat corruption, minimize corruption risks, provide for transparent and honest operations, improve corporate culture, follow best practices of corporate governance, and maintain strong business reputation.

RusHydro and its subsidiaries use a system of corporate policies and standards to regulate anti-corruption measures and define the main objectives, goals and focus areas of activities aimed at preventing and combating corruption. These documents include the Code of Corporate Ethics, Anti-Corruption Policy, Regulations on the Prevention and Management of Conflicts of Interest, Regulations on the Procedure to Report Presents Received, Anti-Corruption Efforts of RusHydro’s Employees, RusHydro’s Control and Risk Management Department.

In order to improve the performance of RusHydro’s anti-corruption efforts, the Group has developed and approved the Comprehensive Program of Anti-Corruption Activities for 2016-2019 (the “Program”) to define the focus areas of corruption prevention:

- developing and updating the Company's anti-corruption policy and by-laws;
- providing for transparency and availability of information on the Company's anti-corruption policy and ensuring employees' awareness of anti-corruption legislation;
- providing for investigations into any reports of wrongdoings;
- cooperation with state regulatory bodies and law enforcement authorities responsible for combating corruption;
- measures to prevent wrongdoings by the Company's employees;
- enhancing internal controls.

The following information is published on RusHydro’s website and intranet portal regularly in the Company’s offices.

Documents are available online at: http://www.rushydro.ru

Comprehensive Program of Anti-Corruption Activities

In 2018, the Company rolled out a number of anti-corruption initiatives in accordance with the approved action plan for implementing the Comprehensive Program of Anti-Corruption Activities for 2018-2019.

Program workstreams

- Approval of a new Regulation on RusHydro’s Line of Trust (Order No. 689 of September 12, 2018) updating the procedure for processing and responding to the reports received through the Line of Trust.
- Amendment of the Rules of RusHydro’s Line of Trust: Operation to change the 24/7 hotline number (Order No. 1018 of December 27, 2018);
- Amendment of the Code of Corporate Ethics in terms of the measures designed to prevent the substantial shareholders' misconduct in connection with the Company’s transactions involving a conflict of interest, as well as mitigating the effects of such misconduct (the Board of Directors minutes No. 281 of December 27, 2018);
- Update of the Regulations on the Procedure to Report Presents Received by RusHydro’s Employees (Order No. 60 of February 5, 2019);

Providing for transparency and availability of information on the Company’s anti-corruption policy and ensuring employees’ awareness of anti-corruption legislation

- The following information is published on RusHydro’s website and Intranet portal and updated on a timely basis:
  - the Company’s local internal documents on combating corruption and preventing wrongdoings and conflicts of interest;
  - action plans and reports on the implementation of the Comprehensive Program of Anti-Corruption Activities;
  - information, effective laws and regulations, and guidance on combating corruption.
  - RusHydro has put in place a permanent Line of Trust (http://www.rushydro.ru/form/), a communication channel available to RusHydro Group’s employees and third parties (including anonymous) to report issues in an effort to combat fraud and corruption, prevent wrongdoings and conflicts of interest, and improve RusHydro’s operations.

Providing for investigations into any reports of wrongdoings

- In 2018, the Company considered 195 reports received through the Line of Trust, of which 67 (34%) were confirmed to be true and involve violations of rights and/or other wrongdoings. The Company took measures to eliminate all verified violations.

1 Transactions involving a conflict of interest are the Company’s transactions with persons affiliated with (related to) substantial shareholders of RusHydro (other than the Russian Federation) aimed at receiving unjustified profit (enrichment) at the Company’s expense.


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Program workstreams What we did in 2018

Cooperating with the state regulatory bodies and law enforcement authorities responsible for combating corruption

» In 2018, the areas of the Company’s cooperation with government authorities (the Government of the Russian Federation, the Ministry of Energy of Russia, etc.) included:
   » disclosure of information upon an authorized request;
   » reporting on the Company’s anti-corruption practices;
   » filing queries for the clarification of anti-corruption law enforcement practices;

Measures to prevent wrongdoings by the Company’s employees

» In 2018, following the amendments of legislation and RusHydro’s internal local documents, the Company updated its corporate distance learning courses: Combating Fraud at RusHydro and Combating Procurement Fraud.

» In December 2018, the employees of the Headquarters, branches and subsidiaries of RusHydro holding positions exposed to corruption risks1 were tested to check their knowledge of Russian anti-corruption laws and the Company’s local internal documents on combating corruption.

» In 2018, as part of the effort to identify and resolve conflicts of interest, the Company collected and checked 2017 income records of 387 employees (the top management of RusHydro and its subsidiaries). As a result, 40 officers failed to comply with the relevant requirements.

In response to all 40 cases of non-compliance, RusHydro’s Central Ethics Committee, after reviewing the results of the declaration for 2017, issued recommendations on the elimination of the identified gaps and violations, prevention or resolution of actual and/or potential conflicts of interest and use of disciplinary action.

Enhancing internal control system

» RusHydro develops, updates and implements internal control improvement plans on an annual basis. For more information on relevant initiatives, see Risk management section of this report.

Anti-corruption awareness program and training (2018-2)

The Company promotes awareness and educates employees on anti-corruption practices. The Company’s anti-corruption measures include, among other things:

» distance learning induction for new (newly hired) employees of the Company, featuring information on this Policy;
» regular training on preventing and combating corruption in the Company;
» individual consultations for the Company’s employees regarding the application of anti-corruption standards and procedures.

RusHydro conducts annual assessment of employees in the positions with high exposure to corruption risk in order to test their knowledge of the anti-corruption laws.

Employee training in the existing anti-corruption policies in 2018

<table>
<thead>
<tr>
<th>Region</th>
<th>Top management</th>
<th>Middle management</th>
<th>Junior management</th>
<th>White-collar employees</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Number of people</td>
<td>% of employees</td>
<td>Number of people</td>
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<tr>
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<td>85.71</td>
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<tr>
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<td>9</td>
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<tr>
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<tr>
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<tr>
<td>Perm Territory</td>
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<td>28.57</td>
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<td>47.62</td>
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<tr>
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<td>30.77</td>
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<tr>
<td>Moscow Region</td>
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<td>55.56</td>
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<tr>
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<tr>
<td>Total</td>
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<td>24.6</td>
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</table>

1 The list of the positions exposed to corruption risks was approved in accordance with the Company’s Anti-Corruption Policy.

Employee training in the existing anti-corruption policies in 2018

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Key developments in 2018

In order to keep the Company’s anti-corruption regulations updated, RusHydro undertook the following in 2018:
- approved a new Regulation on the Procedure for Accepting, Processing and Responding to the Reports received through RusHydro Group’s Line of Trust, including the following additions and amendments:
  - adding and modifying terms and definitions;
  - updating a list and responsibilities of the officers and divisions in charge of receiving and considering reports received through the Line of Trust;
  - updating the procedure for responding to the reports received through the Line of Trust;
- amended the Rules of RusHydro’s Line of Trust Operation to change the dial-in hotline number;
- amended the Code of Corporate Ethics in terms of the measures designed to prevent the substantial shareholders’ misconduct in connection with the Company’s transactions involving a conflict of interest, as well as mitigating the effects of such misconduct;
- approved the Regulations on the Procedure to Report Presents Received by RusHydro’s Employees updating the reporting procedure and the criteria, limits and restrictions for giving presents and using of representation allowances and hospitality expenses;

Anti-corruption program implementation roadmap for 2019

In 2019, the Company will continue rolling out the Comprehensive Program of Anti-Corruption Activities, which will include:
- developing and updating the Company’s anti-corruption regulations and by-laws;
- providing for transparency and availability of information on the Company’s anti-corruption policy and ensuring employees’ awareness of anti-corruption legislation;
- providing for investigations into any reports of wrongdoings;
- Co-operating with the state regulatory bodies and law enforcement authorities responsible for combating corruption;
- measures to prevent wrongdoings by the Company’s employees;
- other measures for improving efficiency of anti-corruption efforts.

Providing for transparency and availability of information

The following information is published on RusHydro’s website and intranet portal and updated on a timely basis:
- the Company’s local internal documents on combating corruption and preventing wrongdoings and conflicts of interest;
- action plans and reports on the implementation of the Comprehensive Program of Anti-Corruption Activities;
- information, effective laws and regulations, and guidance on combating corruption.

RusHydro works in close cooperation with the law enforcement authorities and supervisory bodies and provides assistance to them in case of audits and inspections, requests of information on the Company’s anti-corruption compliance (including with respect to storage and transfer to the authorities of the information and documents on corruption offences), investigations of corruption cases, and inspections seeking to check how the Company prevents and combats corruption.

In 2018, the Company completed the implementation of the Comprehensive Program of Anti-Corruption Activities and updated the Regulation on the Procedure for Accepting, Processing and Responding to the Reports received through the Line of Trust, which sets the list and responsibilities of the officers and divisions in charge of receiving and considering reports, and defines the procedure for responding to them.

The information on the ways to file a report is available on notice boards and information screens in the offices of RusHydro Group companies.

The results of the Line of Trust’s operation are disclosed on the Company’s intranet portal and in the corporate newsletter.

Line of Trust

In 2018, the Company considered 195 reports received through the Line of Trust. The reports that did not meet the criteria set by the Rules of RusHydro’s Line of Trust Operation (email spam, advertisements, mass mailing, etc.) were not accepted. The number of reports increased by 17% year-on-year.

The increase was mainly driven by the integration of RusHydro’s Line of Trust, its promotion, as well as the Group’s organizational changes made to improve performance of electricity retailers that included deployment of new software, unified payment documents, etc.

Information contained in 67 (34%) reports was confirmed to be true and involve violations of rights and/or other wrongdoings. The Company took measures to eliminate the verified violations:
- based on three reports, disciplinary action (reprimand, censure) was taken against five employees (managers) of RusHydro Group, who committed violations;
- two reports resulted in the managers being stripped of their bonuses;
- Two employees (one of them being a manager) faced termination of their employment contracts by mutual consent;
- organizational measures, including:
  - preventive discussions;
  - necessary employee training; • amendments made to procurement documents, cancellation/postponement of procurement procedures;
  - payment adjustments;
  - other measures aimed at eliminating identified gaps and violations.

There are several ways to file a report via the Line of Trust:

- Hotline answer phone (service available 24/7): +7 495 785 0937
- In-person meeting with the Internal Control and Risk Management Director – Chief Auditor
- Postal service
- Line of Trust boxes placed in the Company’s offices
- Email: lid@rushydro.ru
- Telephone: (service available 24/7):
  - 8-800-600-3330 (Russia and the regions);
  - +7 495 785 0939
- Coordinator: Director – Chief Auditor and Risk Management
- Number of reports considered, pcs

<table>
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<tr>
<th>Year</th>
<th>Reports by topic, pcs</th>
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<tbody>
<tr>
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<table>
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<tr>
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<td>Other</td>
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Reports by topic, pcs

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</tr>
<tr>
<td>2018</td>
<td>195</td>
</tr>
</tbody>
</table>
Control over major transactions and interested-party transactions

RusHydro has a transaction control system in place. RusHydro’s Regulations on Contracts and Agreements govern a common procedure for negotiating, concluding and executing contracts on behalf of the Company. Draft contracts are subject to review to ensure compliance with Russian laws.

Depending on transaction value, the review is done by legal departments of the Company’s branches or at the Company’s Headquarters.

For the list of interested-party transactions concluded by RusHydro in 2018, including the subject of the transaction, interested parties involved and approval details, see Appendix No.2 to the annual report. All the transactions requiring approval by the Company’s governing bodies were approved. Consequently, none of them involved conflict of interest.

In 2018, RusHydro made no major transactions.

Preventing the use of insider information

RusHydro has put in place Regulations on Insider Information to secure compliance with laws and regulations of the Russian Federation in terms of prevention of unauthorized use of insider information and market manipulation. The Regulations are in line with the world’s best corporate governance practices, including Disclosure and Transparency Rules of the Financial Conduct Authority.

The Regulations specify the persons that are included in the Company’s list of insiders, the rules of access to the insider information and its confidentiality protection, as well as restrictions on the use of insider information in transactions with the Company’s financial instruments and disclosure thereof to the third parties.

The list of insider information is made in Russian and English and published on the Company’s website. In Q2 2018, the Company approved a new revised list of insider information1.

The data that constitutes the Company’s insider information is also published in Russian in the news feed of an authorized news agency Interfax Corporate Information Disclosure Center (for more information, see www.e-disclosure.ru) and in English in the London Stock Exchange’s News Monitoring Service (for more information, see https://www.londonstockexchange.com/exchange/prices-and-markets/stocks/exchange-insight/company-news.html?fourWayKey=US7821834048USUSDIOBE).

RusHydro’s list of insiders is updated upon inclusion or exclusion of insiders. As at December 31, 2018, the Company’s list of insiders included 18 legal entities and 86 individuals. During 2018, six legal entities and 16 individuals were added to the list, while four individuals and one legal entity were excluded.

RusHydro sends proper inclusion/exclusion notifications to the insiders. In 2018, 27 notifications were sent.

In response to the requests of security market operator (PISC Moscow Exchange), RusHydro provided it with 12 lists of insiders as of the respective dates of the requests.

In 2018, RusHydro received two notifications from its insider George Rizhinashvili, the member of the Management Board, First Deputy General Director of the Company, regarding the sale of his ordinary registered shares in RusHydro through organized trading.

The member of the Management Board and First Deputy General Director in charge of the unit of financial and corporate law management supervises the Company’s compliance with the laws on insider information and submits quarterly reports to the Audit Committee of the Board of Directors of RusHydro. The Audit Committee includes the information on the Company’s compliance with these requirements into its annual report.

RISK MANAGEMENT

System of internal control and risk management

RusHydro’s operations are subject to a number of risks that, in certain circumstances, may have an adverse impact on the Company’s operating and financial performance and its social and environmental footprint. The Company has a risk management system in place to mitigate negative effects of potential threats while capturing favorable opportunities in line with the Development Strategy of RusHydro Group until 2020 with an outlook for 2025.
The Company’s risk management processes are coordinated by the Control and Risk Management Department set up as part of the internal control and risk management unit. Its headcount as at 31 December 2018 was 26 employees.

The Control and Risk Management Department is responsible for:
• maintaining an effective internal control and risk management framework at RusHydro Group,
• coordinating risk identification, assessment and management at RusHydro Group,
• carrying out centralized day-to-day control over RusHydro Group’s operations, including assessment of the Management Board’s performance in relation to internal control function;
• maintaining an effective anti-corruption framework and coordinating RusHydro Group’s anti-corruption activities.

Internal regulations

The key regulation defining the goals, objectives and principles of the Company’s corporate system of internal control and risk management is RusHydro’s Internal Control and Risk Management Policy.

Risk management: methods and approaches

The Company applies the following set of risk management methods and approaches in line with its Internal Control and Risk Management Policy:
• risk management is an integral part of all organizational processes: it is not segregated from the Company’s key business activities and processes;
• risk management is an integral part of decision-making: it helps the decision makers to make informed choices, prioritize initiatives and find the best solutions among alternatives;
• risk management is essential to RusHydro’s continuous improvement: the Company refines and enhances its corporate system of internal control and risk management to raise the level of its risk management maturity;
• the Company fosters a risk-focused organizational culture;
• the top management sets risk management as a priority, makes sure that risk management knowledge and skills are shared throughout the Company and the Group, promotes learning of the basics of risk management and advances the corporate culture centred around the risk-based approach to management;
• the Company’s management ensures effective information exchange and setting of communication standards as part of corporate risk management.

Pursuant to RusHydro’s Strategic Management Regulations, the Company maintains a strategic risk register which identifies risk owners and is reviewed annually and approved by the Management Board. Strategic risks that are deemed critical or material are addressed in the risk mitigation plan which identifies action owners, deadlines and deliverables and is approved by the Management Board. Performance against the risk mitigation plan is measured when determining employees’ bonus awards. The implementation of the risk mitigation plan and its progress are monitored and overseen by the Company’s risk managers.

Companies with a Stake Owned by the Russian Federation (approved by order No. 86 of the Federal Agency for State Property Management (Rosimushchestvo) of March 20, 2014).

More information on RusHydro’s risk management system in line with the Guidelines on Audit Committees of the Boards of Directors of Joint-Stock Companies with a Stake Owned by the Russian Federation is available on the Company’s website at: www.rushydro.ru

Independent assessment of the corporate system of internal control and risk management

External assessment of the corporate system of internal control and risk management

The Audit Committee of the Board of Directors or the Chairman of the Management Board - General Director may seek an external independent assessment of the corporate system of internal control and risk management against its target state and to identify areas for its improvement.

In 2018, RusHydro’s Board of Directors performed an assessment of the corporate system of internal control and risk management by independent third-party experts. The report revealed that the Company’s corporate system of internal control and risk management had a moderate level of maturity, with elements of both systems being generally in line with the target state set by the assessment methodology as approved by the Audit Committee of the Company’s Board of Directors.

The priority areas for the improvement of the corporate system of internal control and risk management identified by the Board of Directors based on the report findings include updating the model of the Company’s business processes, benchmarking, and revising the Company’s approach to further development of the corporate system of internal control and risk management.

Internal Audit Service to provide the Company’s Board of Directors and the Group’s executive bodies with independent and objective information about the current state of the corporate system of internal control and risk management against its target state and to identify areas for its improvement.

In 2018, RusHydro’s Board of Directors approved an assessment of the corporate system of internal control and risk management by independent third-party experts. In 2018, no external independent assessment was performed.

Internal assessment of the corporate system of internal control and risk management

The internal assessment of the corporate system of internal control and risk management is performed annually by the Company’s Internal Audit Service to provide the Company’s Board of Directors and the Group’s executive bodies with independent and objective information about the current state of the corporate system of internal control and risk management against its target state set by the methodology.

The assessment results were presented in a follow-up report on the operation of the corporate system of internal control and risk management that was reviewed by the Company’s Board of Directors at a meeting held in person and approved by resolution of the Board of Directors on June 21, 2018.

The report revealed that the Company’s corporate system of internal control and risk management had a moderate level of maturity, with elements of both systems being generally in line with the target state set by the assessment methodology as approved by the Audit Committee of the Company’s Board of Directors.

The priority areas for the improvement of the corporate system of internal control and risk management identified by the Board of Directors based on the report findings include updating the model of the Company’s business processes, benchmarking, and revising the Company’s approach to further development of the corporate system of internal control and risk management.

More information of the relevant regulations is also available on the Company’s website at: www.rushydro.ru

More information on RusHydro’s risk management system in line with the Guidelines on Audit Committees of the Boards of Directors of Joint-Stock Companies with a Stake Owned by the Russian Federation is available on the Company’s website at: www.rushydro.ru

More information on RusHydro’s risk management cycle and methods is available on the Company’s website at: www.rushydro.ru

The Internal Control and Risk Management Policy is available on the Company’s website at: www.rushydro.ru
Improvement of the corporate system of internal control and risk management

The Company implemented a set of key initiatives listed below to improve its corporate system of internal control and risk management.

- In 2018, the Company reorganized its internal control and risk management unit. As a result, the unit successfully managed a transition to a new organizational structure and the Company approved new internal regulations governing the activities of the structural units within the internal control and risk management unit.

- In 2018, the Company started drafting internal regulations governing the operation of the corporate system of internal control and risk management at the Group level along with the methodology for supporting the internal control and risk management process.

- RusHydro’s subsidiaries were assessed and prioritized by risk level and progress in implementing risk management processes with a view to developing a risk-based approach to building the 2018 internal control action plan and assess the efficiency and form of control activities.

- The implementation of improvements in internal control over RusHydro’s key business processes is monitored on a systemic basis, with more proposals developed for introducing new or strengthening the existing business process controls.

- The subsidiaries’ risk mitigation plans for 2018–2019 are being developed subject to regular reviews and approvals, and progress against the risk mitigation plans is monitored on an ongoing basis.

There are no significant changes about key risks in the reporting year compared to the previous year.

Risk management report for 2018

Risks and opportunities are prioritized according to their impact on key financial, environmental and social aspects of the Company’s operations, with the strategic targets, development priorities and the Company’s mission factored in. [102]

In 2018, RusHydro Group’s register consisted of 15 risks, with no changes taking place throughout the year. [102-11]

In 2018, the risk management activities centered around the critical risks associated with key construction projects, including:

- delayed commissioning of new facilities at Zaramagskiy HPP (346 MW, under capacity sale agreements for new NPP/HPPs); Sakhaliniskaya GRES-2 (120 MW);
- cost overruns for investment projects at Verkhnebalkarskaya SHPP, Zagorskaya PSPP-2 (first stage of switchgear construction), GTP-CHP at the central steam and water boiler site in Vladivostok.

During 2018, the risk management activities centered around the critical risks associated with key construction projects, including:

- delayed commissioning of new facilities at Zaramagskiy HPP (346 MW, under capacity sale agreements for new NPP/HPPs); Sakhaliniskaya GRES-2 (120 MW);
- cost overruns for investment projects at Verkhnebalkarskaya SHPP, Zagorskaya PSPP-2 (first stage of switchgear construction), GTP-CHP at the central steam and water boiler site in Vladivostok.

Delays in commissioning and project cost overruns were caused by the need to specify and amend the design and cost estimate documents, coupled with low financial stability and qualification of contractors, as well as contractors’ errors during the pre-commissioning stage.

In 2018, measures were taken to mitigate these risks to an acceptable level.

During 2018, the risk management activities centered around the critical risks associated with key construction projects, including:

- delayed commissioning of new facilities at Zaramagskiy HPP (346 MW, under capacity sale agreements for new NPP/HPPs); Sakhaliniskaya GRES-2 (120 MW);
- cost overruns for investment projects at Verkhnebalkarskaya SHPP, Zagorskaya PSPP-2 (first stage of switchgear construction), GTP-CHP at the central steam and water boiler site in Vladivostok.

RusHydro Group’s strategic risk radar for 2018–2019

1. Delayed commissioning of new facilities
2. Cost overruns for investment projects
3. Revenue shortfalls from the sale of electricity (capacity) and heat against the business plan
4. Adverse changes / breaches of the law
5. Industrial disasters and accidents
6. Lack of funds, including those sources externally
7. Risk of non-delivery / efficiency losses associated with production programs
8. Terrorism and cyber terrorism
9. Failure to achieve project targets by engineering companies (project companies, institutes, repair companies)
10. Management system deficiencies and errors
11. Reputational risks
12. Damage caused by natural and industrial disasters outside RusHydro Group facilities
13. Corruption risk
14. Increase in receivables for electricity (capacity) and heat supplied and for transmission services rendered
15. Inefficient integration of companies merged into RusHydro Group
Risk management report for 2018

Strategic risk management at RusHydro Group

<table>
<thead>
<tr>
<th>Risk and Its Priority</th>
<th>Impact on Long-term Development Program KPI</th>
<th>Stakeholders</th>
<th>Key risk mitigants</th>
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<tbody>
<tr>
<td><strong>Economic aspect</strong></td>
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<tr>
<td>1. Delayed commissioning of new capacities</td>
<td>RusHydro Group’s investment program implementation</td>
<td>Shareholders and investors, Employees, Federal government authorities, Regional and municipal government authorities, Suppliers and contractors</td>
<td>Data systematization for designed facilities; developing a corporate project management system to systematize data on the existing and designed facilities; building internal capabilities for expert review of design and detailed design documents; improving efficiency of design institutes and procurement processes to strengthen in-house capabilities for performing expert review of design and detailed design documents; formalizing activities involving in-house expert review of design documents; control over quality, timing and cost of works; keeping a blacklist of unreliable designers, participating in selecting subdesigners; keeping a Register of contractors’ failures to meet deadlines under contracts for new construction projects and rehabilitation &amp; modernization (TR&amp;M) projects; streamlining insurance and procurement processes as applicable to construction and installation (reducing the risk of project cost overruns due to the facility damage or loss caused by design or construction deficiencies or external impact); drafting internal regulations for the performance of certain types of work and introducing a work permit system for such works enabling employee suspension from further projects in case of material violations; developing a quality control system for the supplied equipment (including its production and shipment/delivery); monitoring the progress of building grid infrastructure; using a system for supervising and monitoring the timing and cost of new construction projects based on the SAP permanent facilities construction management system; as part of the 2018–2023 investment program review, the Company measured the risk-adjusted rate of return on investment projects for permanent facilities construction; taking a more stringent stance on the contractors’ compliance with the terms of contracts; filing complaints and claims</td>
</tr>
</tbody>
</table>

2. Project cost overruns for permanent facilities construction | RusHydro Group’s investment program implementation | Shareholders and investors, Employees, Federal government authorities, Regional and municipal government authorities, Suppliers and contractors | Drafting a methodology subject to RusHydro’s credit policy to invest idle cash balances |

4. Lack of funds, including those sources externally | Refinancing the debt of RAO ES East | Shareholders and investors, Federal government authorities, Suppliers and contractors | Drafting proposals on amending laws and regulations governing the power industry; liaising with the federal government authorities and the Market Council Non-Profit Partnership; improving transparency of the economic dispatching business process; preparing the areas to be flooded to form water reservoirs for the hydropower plants under construction with financing coming out of the state budgets and budgets of constituent entities of the Russian Federation; taking part in shaping the Water Use Rules as part of implementing the Comprehensive Modernization Program; automating the water level scenarios generation and refining the process methodology; taking part in shaping the Water Use Rules as part of the interagency working groups for setting HPP operation modes; maintaining a well-balanced model of working capital financing from both short-term and long-term sources; overseeing compliance with the terms of loan agreements to exclude any breach of financial covenants by the Company; using short-term financial instruments (bank deposits) to invest idle cash balances; introducing an internet rate and currency risk management methodology subject to RusHydro’s credit policy; hedging financial risks; diversifying the debt portfolio |

3. Revenue shortfall from the sale of electricity (capacity) and heat against the business plan | Production program implementation; development of a hydrometeorological observation network; tariff management; improvement of the regulatory framework governing the power industry in the Far Eastern Federal District of Russia | Shareholders and investors, Employees, Suppliers and contractors | Implementing the Comprehensive Modernization Program; formalizing activities involving in-house expert review of design documents; control over quality, timing and cost of works; keeping a blacklist of unreliable designers, participating in selecting subdesigners; keeping a Register of contractors’ failures to meet deadlines under contracts for new construction projects and rehabilitation & modernization (TR&M) projects; streamlining insurance and procurement processes as applicable to construction and installation (reducing the risk of project cost overruns due to the facility damage or loss caused by design or construction deficiencies or external impact); drafting internal regulations for the performance of certain types of work and introducing a work permit system for such works enabling employee suspension from further projects in case of material violations; developing a quality control system for the supplied equipment (including its production and shipment/delivery); monitoring the progress of building grid infrastructure; using a system for supervising and monitoring the timing and cost of new construction projects based on the SAP permanent facilities construction management system; as part of the 2018–2023 investment program review, the Company measured the risk-adjusted rate of return on investment projects for permanent facilities construction; taking a more stringent stance on the contractors’ compliance with the terms of contracts; filing complaints and claims |

In the section EBITDA refers to the indicator used for KPI calculations.
## Risk and Its Priority | Impact on Long-Term Development Program KPI | Stakeholders | Key Risk Mitigants
--- | --- | --- | ---
### 5. Risk of non-delivery / efficiency losses associated with production programs
#### Significant risk
| Production program implementation |
| Shareholders and investors |
| Employees |
| Suppliers and contractors |
| Direct |
| Meeting the accident prevention target |
| ROE |
| Adherence to the capacity commissioning schedules, funding and spending plan |
| Total shareholder return (TSR) |
| Labor productivity |
| Indirect |
| Prompt filing of complaints and claims with regard to the poor quality of repairs, delivery of substandard equipment and violation of delivery deadlines |
| Setting up production programs based on recommendations of the analytical center |
| Streamlining the contract approval process, amending the company’s internal regulations governing the contracting process |
| Cutting costs (in line with the value growth plan) |
| Maintaining control over the implementation of rehabilitation and modernization projects in compliance with the company’s standards |

### 6. Terrorism and cyber terrorism
#### Significant risk
| Improving the counter-terrorism and information security system |
| Shareholders and investors |
| Employees |
| Suppliers and contractors |
| Federal government authorities |
| Regional and municipal government authorities |
| Direct |
| Meeting the accident prevention target |
| Adherence to the capacity commissioning schedules, funding and spending plan |
| ROE |
| Indirect |
| Decrease in operating expenses (costs) |
| Total shareholder return (TSR) |
| Improving armed protection of the company’s facilities by engaging the private guarding units of the national guard of Russia (Rosguardia), guard federal state unitary enterprise of Rosgvarida, and departmental protection federal state unitary enterprise of the Ministry of Energy of Russia |
| Amending and maintaining up-to-date plans for the interaction with law enforcement agencies to protect the company’s facilities in case of threatened or attempted terrorist attacks |
| Improving access and on-site security control systems at the company’s facilities |
| Planning and taking measures to identify, prevent and suppress acts of unlawful interference against the company’s facilities in cooperation with law enforcement agencies |
| Identifying the most probable threats and developing response plans to remedy acts of unlawful interference against the company’s facilities |
| Improving armed protection of the company’s facilities by engaging the private guarding units of the national guard of Russia (Rosguardia), guard federal state unitary enterprise of Rosgvarida, and departmental protection federal state unitary enterprise of the Ministry of Energy of Russia |
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| Identifying the most probable threats and developing response plans to remedy acts of unlawful interference against the company’s facilities |

### 7. Failure to achieve project targets by engineering companies (subsidiary engineering design institutes)
#### Significant risk
| RusHydro Group’s investment program implementation |
| Rehabilitation and modernization program |
| Shareholders and investors |
| Suppliers and contractors |
| Direct |
| Adherence to the capacity commissioning schedules, funding and spending plan |
| Share of procurement from SMEs |
| ROE |
| EBITDA |
| Total shareholder return (TSR) |
| Labor productivity |
| Indirect |
| Improving armed protection of the company’s facilities by engaging the private guarding units of the national guard of Russia (Rosguardia), guard federal state unitary enterprise of Rosgvarida, and departmental protection federal state unitary enterprise of the Ministry of Energy of Russia |
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| Planning and taking measures to identify, prevent and suppress acts of unlawful interference against the company’s facilities in cooperation with law enforcement agencies |
| Identifying the most probable threats and developing response plans to remedy acts of unlawful interference against the company’s facilities |

### 8. Management system deficiencies and errors
#### Significant risk
| Improving the corporate governance system |
| Shareholders and investors |
| Employees |
| Suppliers and contractors |
| Direct |
| Adherence to the capacity commissioning schedules, funding and spending plan |
| Share of procurement from SMEs |
| ROE |
| EBITDA |
| Total shareholder return (TSR) |
| Labor productivity |
| Indirect |
| Improving armed protection of the company’s facilities by engaging the private guarding units of the national guard of Russia (Rosguardia), guard federal state unitary enterprise of Rosgvarida, and departmental protection federal state unitary enterprise of the Ministry of Energy of Russia |
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| Identifying the most probable threats and developing response plans to remedy acts of unlawful interference against the company’s facilities |

### 9. Increase in receivables for electricity (capacity) and heat supplied and for transmission services rendered
#### Significant risk
| Managing receivables |
| Shareholders and investors |
| Federal government authorities |
| Suppliers and contractors |
| Direct |
| Free cash flow (FCF) |
| Total shareholder return (TSR) |
| Labor productivity |
| Indirect |
| Improving armed protection of the company’s facilities by engaging the private guarding units of the national guard of Russia (Rosguardia), guard federal state unitary enterprise of Rosgvarida, and departmental protection federal state unitary enterprise of the Ministry of Energy of Russia |
| Amending and maintaining up-to-date plans for the interaction with law enforcement agencies to protect the company’s facilities in case of threatened or attempted terrorist attacks |
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| Identifying the most probable threats and developing response plans to remedy acts of unlawful interference against the company’s facilities |

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1. Building a system of employee grades based on the assessment of the Company’s staff list, its strategy and corporate culture.
## Environmental aspect

<table>
<thead>
<tr>
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<tr>
<td>10. Adverse Environmental aspect priority Risk and its changes</td>
<td></td>
<td>Shareholders and investors</td>
<td>Ongoing monitoring of initiated and reviewed changes to the legislation that may affect the company's operations; Monitoring and revising the existing technical oversight standards and regulations; Participating in any relevant activities related to legislative changes and arranged by legislative, executive and judicial bodies, public associations, professional legal unions and associations; Conducting regular environmental audits and implementing received follow-up recommendations; Participating in working groups of the ministry of energy of Russia on technical regulation matters; filing and managing complaints and claims</td>
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11. Industrial disasters and accidents Critical risk

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<td></td>
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<td>Shareholders and investors</td>
<td>Implementing the full scope of the repairs program and the rehabilitation and modernization program; Developing a quality assurance system for equipment supplies (including the quality of production and shipment/delivery), construction, installation and start-up operations, and tightening contractual liability of suppliers/contractors for the quality of equipment and material's production and delivery; Filing and managing complaints and claims against unreliable contractors/suppliers; Implementing recommendations made in follow-up of surveyor inspections of rushydro's facilities; Tightening control over contractors/subcontractors' activities at production sites to reduce the opportunity for injuries, fines, unethical behavior and theft; Developing technical regulations to improve the quality of design and construction management processes; Introducing advanced diagnostics methods eliminating the need to take equipment offline, as well as modern technologies for managing production assets, including the required information technologies; Conducting technical equipment inspections at hazardous production facilities and expert examinations of industrial safety of technical equipment at hazardous production facilities, as well as buildings and structures accommodating hazardous production facilities; Developing a life cycle management system for existing hydroelectric power plants; Monitoring compliance with regulations, guidelines and other documents applicable to any operations, services and works by the company's officers responsible for such monitoring; Reviewing design documents by the customer-side experts</td>
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## Social aspect

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<th>Key risk mitigants</th>
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<tbody>
<tr>
<td>13. Reputational risks</td>
<td></td>
<td>Shareholders and investors</td>
<td>Improving the corporate governance system: Improving the corporate system of internal control and risk management; Improving the economic and information security system</td>
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<td>Consumers</td>
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<td></td>
<td></td>
<td>Suppliers and contractors</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-profit organizations</td>
<td></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

14. Corruption risk

<table>
<thead>
<tr>
<th>Risk and its priority</th>
<th>Impact on Long-term Development Program KPI</th>
<th>Stakeholders</th>
<th>Key risk mitigants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Shareholders and investors</td>
<td>Developing, implementing and monitoring the company's anti-bribery procedures; Coordinating activities aimed at preventing corruption; Ensuring and empowering policies aimed at assessing and mitigating corruption risks; Supervising the compliance of rushydro's and its subsidiaries' anti-corruption activities with the legislation; Implementing procedures to prevent conflicts of interest in the workplace; Monitoring data on income, expenditures, property and property-related liabilities of the company's officers holding positions exposed to corruption risks; Conducting expert review of procurement documents; Checking counterparty files for any conflicts of interest; Maintaining rushydro's anti-corruption trust line, checking reported allegations of wrongdoings; Conducting internal investigations of alleged wrongdoings involving the company's employees; developing and implementing measures to eliminate identified violations/deficiencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employees</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trade unions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Media</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suppliers and contractors</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-profit organizations</td>
<td></td>
</tr>
</tbody>
</table>
REPORT ON REMUNERATION OF THE GOVERNING AND CONTROL BODIES

Remuneration of the Board of Directors and Board committees

Remuneration of the Board of Directors is based on the following principles approved by the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors:

- the Regulations are not applicable to the members of the Board of Directors who act (during their term in office as members of the Board of Directors whether partial or entire) as members of the Company's collegial executive body or as the Company’s sole executive body;
- remuneration is not set or paid to restrictions or bans on receiving any payments from business entities in accordance with the applicable Russian laws;
- the base remuneration of a member of the Board of Directors is RUB 3.51 mn;
- the remuneration depends on the number of meetings attended;
- the remuneration is increased if the member of the Board of Directors is Chairman of the Board of Directors (by 30%), Chairman of a Board committee (by 20%), Senior Independent Director (by 15%), or member of a Board committee (by 10%);
- The Board of Directors annually takes a decision on the Recommendations to the Annual General Meeting of Shareholders Regarding Payment of Remuneration to Members of the Board of Directors who are not Public Officers in the amount set by the Internal Regulations as provided for in the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors (the “Remuneration Regulations”). The remuneration is paid to the members of the Board of Directors for the period from their appointment as members of the Board of Directors to the election of a new Board of Directors.

On June 27, 2018, RusHydro’s General Meeting of Shareholders resolved to pay remuneration to the members of the Board of Directors for their services for the period from June 26, 2017 to June 27, 2018 in the amount, within the timeframes, and in accordance with the procedure, set out in the Remuneration Regulations.

The Board of Directors’ remuneration policy was revised after Ernst & Young (CIS) B.V. conducted research on board remuneration policies at Russian companies of comparable scale in 2016. The research results were used to develop a new calculation methodology setting a base remuneration of each member of the Board of Directors at RUB 3.51 mn, which is in line with the market average. This approach allowed the Company to retain and attract professionals to the Company’s Board of Directors.


2 Minutes No. 17 of June 28, 2018.
Remuneration of the Management Board

Remuneration to members of the Management Board, including Chairman of the Management Board – General Director in 2018, was paid in accordance with the employment contracts and the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Management Board approved by the Company’s Board of Directors on November 11, 2016 (Minutes No. 243 of November 14, 2016).

In 2016, the Company engaged Ernst & Young (CIS) B.V. (Moscow branch), a global consultancy firm, to conduct large-scale research on top management remuneration policies at Russian companies of comparable scale. The research results were used to revise the methodology for calculating remuneration of the Management Board.

Since January 1, 2017, the remuneration is directly dependent on the achievement of the Company’s short- and long-term KPI recommended by the Nomination and Compensation Committee and approved by the Board of Directors.

The current remuneration system relies on the following principles: transparency, balanced approach (interests of shareholders are aligned with the management’s interests in delivering consistent growth of the company’s value and developing the business), impartiality (the key objectives and principles underpinning the Plan are to motivate the Company’s management to achieve strategic objectives and pursue openness to shareholders as remuneration is dependent on the achievement of the KPIs calculated using the unified methodology and is based on equal payment conditions).

The amount and terms of payment of remuneration to the members of the Management Board, including Chairman of the Management Board – General Director, is determined in the regulation on payment of remuneration and compensation to RusHydro’s Management Board approved by the Board of Directors. The Company does not make “golden parachute” payouts for early termination. The maximum compensation paid to members of the Management Board upon early termination of employment is limited to three average monthly salaries as provided for by the Russian legislation.

For more information on the Management’s KPI and performance, see the Key Performance Indicators section on p. 36.

Remuneration of the Management Board, ‘000 RUB¹

<table>
<thead>
<tr>
<th>Type of remuneration</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration for membership in governing bodies</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Salary</td>
<td>71,655.3</td>
<td>185,393.1</td>
<td>157,616.6</td>
</tr>
<tr>
<td>Bonus</td>
<td>153,917.2</td>
<td>344,618.0</td>
<td>244,368.6</td>
</tr>
<tr>
<td>Commissions</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other types of remuneration</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>225,572.5</td>
<td>530,011.1</td>
<td>401,985.2</td>
</tr>
</tbody>
</table>

Compensation

6,993.9 1,697.4 861.6

¹ Including personal income tax.

Remuneration of the Internal Audit Commission

Remuneration to members of the Internal Audit Commission in 2018 was paid for the period determined in the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Internal Audit Commission amended to clarify the calculation methodology.

There are no agreements in place on the amount of remuneration to members of the Internal Audit Commission.

Remuneration of the Internal Audit Commission, ‘000 RUB

<table>
<thead>
<tr>
<th>Type of remuneration</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration for membership in a control body overseeing the Company’s financial and business activities</td>
<td>629.5</td>
<td>530.5</td>
<td>370.8</td>
</tr>
<tr>
<td>Total</td>
<td>629.5</td>
<td>530.5</td>
<td>370.8</td>
</tr>
<tr>
<td>Expenses related to duties in the control body overseeing the Company’s financial and business activities and compensated by the Company</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Individual disclosure of remuneration for work in RusHydro’s Internal Audit Commission, ‘000 RUB

<table>
<thead>
<tr>
<th>Internal Audit Commission members</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natalia Annikova</td>
<td>163.1</td>
</tr>
<tr>
<td>Igor Repin</td>
<td>207.6</td>
</tr>
<tr>
<td>Tatyana Zobkova (Chairman of the Internal Audit Commission)</td>
<td>–</td>
</tr>
<tr>
<td>Marina Kostina</td>
<td>–</td>
</tr>
<tr>
<td>Dmitry Simochkin</td>
<td>–</td>
</tr>
</tbody>
</table>

Auditor’s fee

The auditor’s fee is determined by the Board of Directors based on the results of competitive bidding and after prior consideration of the matter by the Audit Committee under the Board of Directors of PSC RusHydro.

Auditor’s fee, RUB mn²

<table>
<thead>
<tr>
<th>Audited reporting year</th>
<th>2016</th>
<th>2017²</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit of the annual RAS financial (accounting) statements and IFRS consolidated statements, including review of the consolidated statements for six months</td>
<td>120.0</td>
<td>136.1</td>
<td>84.2</td>
</tr>
<tr>
<td>Non-audit services</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
</tr>
</tbody>
</table>

² Including VAT.
² The auditor’s fee for 2017 includes the review of the consolidated statements for nine months ended September 30, 2017.
Vostochnaya CHPP with an electric capacity of 139.5 MW and heat capacity of 432 GCal/h is the first large energy-producing facility in 45 years, which was commissioned in the principal city of the Far Eastern federal district. Vostochnaya CHPP has set up a heat capacity allowance for the fast-growing city, and using natural gas is beneficial for the environment.
Independent Limited Assurance Report to the Management of Public Joint Stock Company Federal Hydro-Generating Company – RusHydro (PJSC RusHydro)

Introduction
We have been engaged by management of PJSC RusHydro to provide limited assurance on the selected information described below and included in the Annual report (including information on Sustainable Development) of PJSC RusHydro ("Report") for the year ended 31 December 2018.

The selected subsidiaries ("RusHydro Group") are listed in the Group structure section of the Report.

Selected Information
We assessed the qualitative and quantitative information that is included in the «GRI Standards Compliance Tables» for standard disclosures in environmental, workforce, safety and socio-economic areas in the reporting scope (the "Selected Information"). The scope of our limited assurance procedures was limited to Selected Information for the year ended 31 December 2018.

Reporting Criteria
We assessed the Selected Information using Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI) and GRI Electric Utilities Sector Supplement (collectively, GRI Standards). We believe that these criteria are appropriate given the purpose of our limited assurance engagement.

Management responsibilities
Management of PJSC RusHydro is responsible for:

- designing, implementing and maintaining internal systems, processes and controls over information relevant to the preparation of the Selected Information that is free from material misstatement, whether due to fraud or error;
- establishing objective reporting criteria for preparing the Selected Information;
- measuring and reporting the Selected Information based on the Reporting Criteria; and
- ensuring that the Selected Information is accurate, complete and fairly presented.

Our responsibilities
We are responsible for:

- planning and performing the engagement to obtain limited assurance about whether the Selected Information is prepared in accordance with the Reporting Criteria;
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- reporting our conclusion to the management of PJSC RusHydro.

This report, including our conclusions, has been prepared solely for the management of PJSC RusHydro in accordance with the agreement between us, to assist management in reporting on RusHydro Group sustainability performance and activities. We permit this report to be disclosed in the Report for the year ended 31 December 2018, to assist management in responding to their government responsibilities by obtaining an independent limited assurance report in connection with the Selected Information for 2018. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than management of PJSC RusHydro for our work or this report except where terms are expressly agreed in writing and our prior consent in writing is obtained.

Professional standards applied and level of assurance
We performed a limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements other than Audits and Reviews of Historical Financial Information", issued by the International Auditing and Assurance Standards Board. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

Our Independence and Quality Control
We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour, together with the ethical requirements of the Auditor’s Professional Ethics Code and Auditor’s Independence Rules that are relevant to our limited assurance procedures in the Russian Federation.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Work done
We are required to plan and perform our work in order to consider the risks of material misstatement of the Selected Information. For this purpose, our procedures included:

- enquiries of PJSC RusHydro’s management;
- interviews of RusHydro Group’s officials responsible for the preparation of the Selected Information and collection of underlying data;
- analysis of the Reporting Criteria and gaining an understanding of the design of the key systems, processes and controls for preparing and reporting the Selected Information; and
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- reporting our conclusion to the management of PJSC RusHydro.

This report, including our conclusions, has been prepared solely for the management of PJSC RusHydro in accordance with the agreement between us, to assist management in reporting on RusHydro Group sustainability performance and activities. We permit this report to be disclosed in the Report for the year ended 31 December 2018, to assist management in responding to their government responsibilities by obtaining an independent limited assurance report in connection with the Selected Information for 2018. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than management of PJSC RusHydro for our work or this report except where terms are expressly agreed in writing and our prior consent in writing is obtained.

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- enquiries of PJSC RusHydro’s management;
- interviews of RusHydro Group’s officials responsible for the preparation of the Selected Information and collection of underlying data;
- analysis of the Reporting Criteria and gaining an understanding of the design of the key systems, processes and controls for preparing and reporting the Selected Information; and

1 The term “RusHydro Group” in this Report refers only to PJSC RusHydro and its selected subsidiaries included in the Report and is not equivalent to the similar term used in the Consolidated IFRS financial statements.

2 PJSC RusHydro’s management is responsible for placing information on PJSC RusHydro’s website and for accuracy of such information. The report issued by us and the information presented on the PJSC RusHydro’s website are independent of such information. However, in all matters of interpretation of information, views or opinions, the original language version of our report takes precedence over this translation.
limited substantive testing of the Selected Information on a sample basis to verify that data have been appropriately measured, recorded, collated and reported in line with the Reporting Criteria.

We have not performed any audit or review procedures in accordance with International Standards on Auditing or International Standards on Review Engagements on the underlying data based on which the Selected Information was prepared.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

**Limited assurance conclusion**

Based on the procedures we have performed and the evidence we have obtained:

- nothing has come to our attention that causes us to believe that the Selected Information for the year ended 31 December 2018 has not been prepared, in all material respects, in accordance with the requirements of GRI Standards; and
- nothing has come to our attention that causes us to believe that the Selected Information does not meet the Core requirements in accordance with the Guidelines of GRI Standards.

30 April 2019
Moscow, Russian Federation

A.S. Ivanov, certified auditor (licence no. 03-000531),

AO PricewaterhouseCoopers Audit

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**TRANSLATOR’S EXPLANATORY NOTE:** This version of our report/ the accompanying documents is a translation from the original, which was prepared in Russian. All possible care has been taken to ensure that the translation is an accurate representation of the original. However, in all matters of independence of information, value or opinion, the original-language version of our report/ the translation takes precedence over this translation.
Subject and Basis of Assurance

PJSC RusHydro (hereinafter - the Company) invited us to evaluate the disclosures made in RusHydro Group’s Annual Report (including information on sustainable development) for 2018 (hereinafter - the Report).

The scope of evaluation during this public assurance covered the materiality and completeness of the information disclosed in the Report, as well as the Company’s response to the proposals of stakeholders.

We did not receive any remuneration from RusHydro for participation in the public assurance procedure.

Qualification of the Report

We are unanimous in the opinion that this Report contains information on core aspects of RusHydro Group’s activities (hereinafter - the Group), with an emphasis being put on sustainable development activities. Disclosures made in the Report allow for a comprehensive assessment of the Group’s performance as of the end of the reporting year, which makes it a valuable source of information for stakeholders.

In preparing the Report, the Company focused on the best disclosure practices, as well as Russian and international corporate reporting standards, including: Global Reporting Initiative Sustainability Reporting Standards, International Integrated Reporting Standard (<IR>), Standards on AA1000 Institute of Social and Ethical Accountability (AA1000AP and AA1000SES). In addition, the Company’s priorities are aligned with the Sustainable Development Goals until 2030 adopted by the United Nations. This is evidenced by, inter alia, an open procedure for identifying material topics, which includes both an assessment of topics relevant to the Company and the possibility to propose for disclosure additional topics relevant to stakeholders. Some of these proposals are reflected in the Report.

In general, we believe that the scope of information presented on all significant topics is sufficient.

Another advantage of the Report is a detailed schematic description of the Group’s business model, which gives an understanding of the structure of the Group’s key business processes, and also demonstrates that the Company’s activities involve the full range of both financial and non-financial indicators.

We highly appreciate the Company’s initiative aimed at interacting with stakeholders in the preparation of annual reports, and recommend the Company to continue close cooperation on this issue with representatives of the target audiences of the Report.

We hope RusHydro will continue to follow best practices in reporting and improve mechanisms for interaction with stakeholders.

Considering stakeholders’ Proposals and Recommendations

As part of interaction with the Company during preparation of the Report, a number of suggestions were made by the Company and other representatives of stakeholders, which were fully or partially included in the final version of the Report. Information relating to the consideration of stakeholders’ proposals following the questionnaire surveys and public hearings on the draft Report, as well as obligations to review and accept comments when preparing the 2019 Report are presented in Appendix No. 19 to the Report.

Summing up, we cannot fail to note a gradual improvement in the quality and accessibility of reporting disclosures. We hope RusHydro will continue to follow best practices in reporting and improve mechanisms for interaction with stakeholders.

Director of the Center for Systemic Transformations of Faculty of Economics at Lomonosov Moscow State University
M. Kuznetsov

Deputy Director - Head of the Expert Center of the Russian Institute of Directors
E. Nikitchanova

Deputy Director of the Department of Social Partnership, Analytics and Professional Qualifications of the Association “ERA of Russia”
A. Pavlov

Advisor to the Office of Corporate Responsibility, Sustainable Development and Social Entrepreneurship at Russian Union of Industrialists and Entrepreneurs
M. Ozeryanskaya

Chief Analyst of the Federal State Budgetary Institution “Information and Analytical Center to Support the Reserve Management and Studies”
S. Sheinfeld

Head of the Electric Power Department of JSC VTB Capital
V. Sklyar
DEFINING MATERIALITY AND CREATING A MATERIALITY MATRIX [102-46]

Material topics were defined while preparing this annual report to ensure its compliance with international standards – the International Integrated Reporting Framework (IIR®), GRI SRS, and AA1000SES (the “applicable standards”).

In 2018, the Company used an updated step-by-step methodology for defining material topics that involved the following stages:
1. the Annual Report Working Group prepared a master list of material topics (based on the analysis of the operational context of RusHydro Group’s business in the reporting year and analysis of best public reporting practices, including peer analysis both in Russia and globally);
2. RusHydro’s management verified the proposed list of topics, updating content and wording;
3. stakeholders assessed the significance of the topics submitted (with the possibility of adding topics significant for specific stakeholders);
4. stakeholders’ proposals were analyzed with additional material topics defined;
5. the final materiality matrix (matrix of material topics, or aspects of operations) was created.

As required by applicable standards, stakeholders defined the materiality of relevant topics using the following two criteria:
1. significant economic, environmental, and social impacts of RusHydro Group on stakeholders (102-47);
2. impact on RusHydro Group’s ability to create value (IIR®).

Besides, based on the results of a stakeholder survey, as resolved by the Annual Report Working Group, the list of material topics was expanded to include the following topics:
- performing obligations under collective bargaining agreements and the Industry Tariff Agreement;
- RusHydro Group’s policy of long-term fuel contracts;
- RusHydro Group’s dividend policy;
- introducing long-term tariff regulation in the Far East.

The Company decided to focus on energy infrastructure expansion as an impetus to regional development as the central topic of this report as it covers material topics 1, 2 and 3, and offers an opportunity to discuss RusHydro Group’s contribution to the energy infrastructure expansion across its footprint.
For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report. The service was performed on the Russian version of the report.

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<th>No.</th>
<th>Disclosure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
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<td>102-2</td>
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<td>30</td>
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<tr>
<td>102-10</td>
<td>Significant changes to the organization and its supply chain</td>
<td></td>
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<td>102-11</td>
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<td>131</td>
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<td>External initiatives</td>
<td>124</td>
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<td>102-13</td>
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<td>Statement from senior decision maker</td>
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<td>102-15</td>
<td>Key impacts, risks, and opportunities</td>
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<td>Values, principles, standards, and norms of behavior</td>
<td>168</td>
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<td>102-17</td>
<td>Mechanisms for advice and concerns about unethical or illegal behavior</td>
<td>196</td>
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<td>102-18</td>
<td>Governance structure</td>
<td>169</td>
</tr>
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<td>102-26</td>
<td>Role of highest governance body in setting purpose, values, and strategy</td>
<td>160</td>
</tr>
<tr>
<td>102-32</td>
<td>Highest governance body’s role in sustainability reporting</td>
<td>5</td>
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<tr>
<td>102-40</td>
<td>List of stakeholder groups</td>
<td>56</td>
</tr>
<tr>
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<td>Collective bargaining agreements</td>
<td>126</td>
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<td>Identifying and selecting stakeholders</td>
<td>56</td>
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<td>Entities included in the consolidated financial statements</td>
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<td>Defining report content and topic boundaries</td>
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</tr>
<tr>
<td>102-47</td>
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<tr>
<td>102-49</td>
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<td>222</td>
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<tr>
<td>102-50</td>
<td>Reporting period</td>
<td>4</td>
</tr>
<tr>
<td>102-51</td>
<td>Date of most recent report</td>
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<td>102-52</td>
<td>Reporting cycle</td>
<td>4</td>
</tr>
</tbody>
</table>

No significant changes were reported in 2018.
**No.**  
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1. Due to changes in information policy rate will be opened next year.
Glossary

**Wind power plant**
A power plant consisting of two or more wind power installations designed to convert wind energy into electrical energy and transmit it to the consumer.

**Day-ahead market**
The competitive selection of suppliers and consumers price bids by JSC ATS a day before the actual delivery of electricity with the determination of prices and delivery volumes for each hour of the day.

**Energy efficiency**
Effective (rational) use of energy resources. Use less energy to provide buildings or production processes with the same level of energy.

**Generating companies (OGKs)**
of the wholesale electricity and capacity market
Electricity and power suppliers who received the status of wholesale market entities entered into contracts binding on wholesale market participants and made other actions necessary for trading in electricity and capacity on the wholesale market in accordance with the agreement on joining the wholesale market trading system.

**Gigacalorie**
A unit of measurement for heating energy.

**Gigacalorie-Hour**
A unit of measurement for heating power.

**Hydroelectric power plant**
The power plant as a single production and technological complex, including hydro-technical facilities and equipment that converts mechanical energy of water into electrical energy. In the annual report, unless otherwise noted, HPPs and PSPP are also classified as hydroelectric power plants.

**Hydro-technical facilities**
Dams, buildings of hydroelectric power stations, water discharge, drainage and outlet structures, tunnels, channels, pumping stations, shipping locks, ship elevators; structures designed to protect against floods and destruction of the banks of reservoirs, banks and the bottom of river beds; structures (dams) enclosing liquid waste storage facilities of industrial and agricultural organizations; facilities against washing-away in channels, as well as other structures designed to use water resources and prevent the harmful effects of water and liquid waste.

**Installed capacity**
Total nominal active capacity of generators at electric power plants which are part of the Group’s structure.

**Kilowatt-Hour**
A unit of measurement of generated electrical energy.

**Megawatt**
A unit of measurement for electrical capacity.

**Net electricity delivered**
Electricity received by consumers.

**Net heat delivered**
Heat energy delivered to the consumer (consumers) at the boundary of operational responsibility (balance sheet attribution).

**PJSC RusHydro, the Company**
Public Joint-Stock Company Federal Hydro-generating Company – RusHydro, including the executive office and branches.

**Pumped storage power plant**
Power plant working by transforming electricity from other power plants into the potential energy of water, during reverse transformation, accumulated energy is contributed to the energy system primarily to cover deficits that may occur during peak load periods.
Dear reader,

You are now familiar with PJSC RusHydro’s annual report. When drafting it, we tried to take note of all suggestions on disclosing material information. Please help us improve the present annual report by selecting the most relevant topics of interest to you.

We value the opinion of every client, shareholder, contractor, and employee. The results of the stakeholder questionnaires are published in every annual report. When drafting it, we tried to take note of all suggestions on disclosing material information. Please help us improve the present annual report by selecting the most relevant topics of interest to you.

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